FIRST IN THE FIELD!

# Offshore

The Marine Oil OPERATIONS Journal

Worst Fire Rages Offshore

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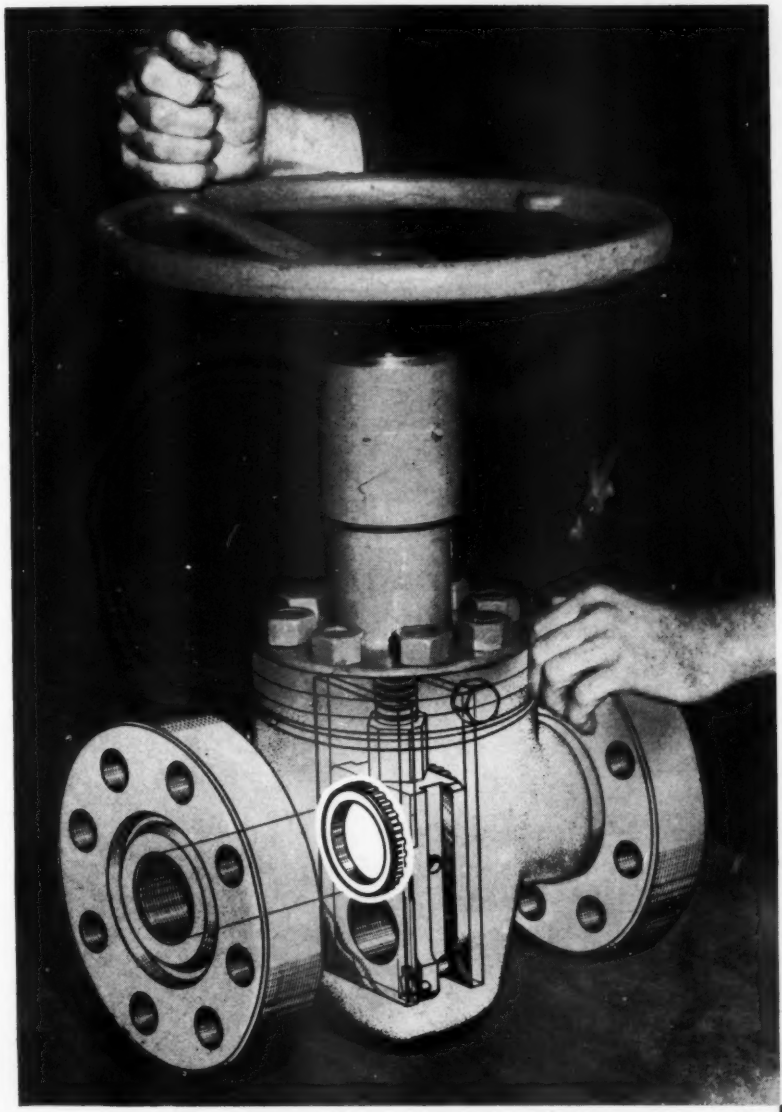

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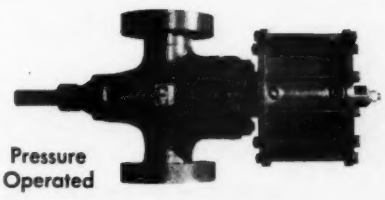

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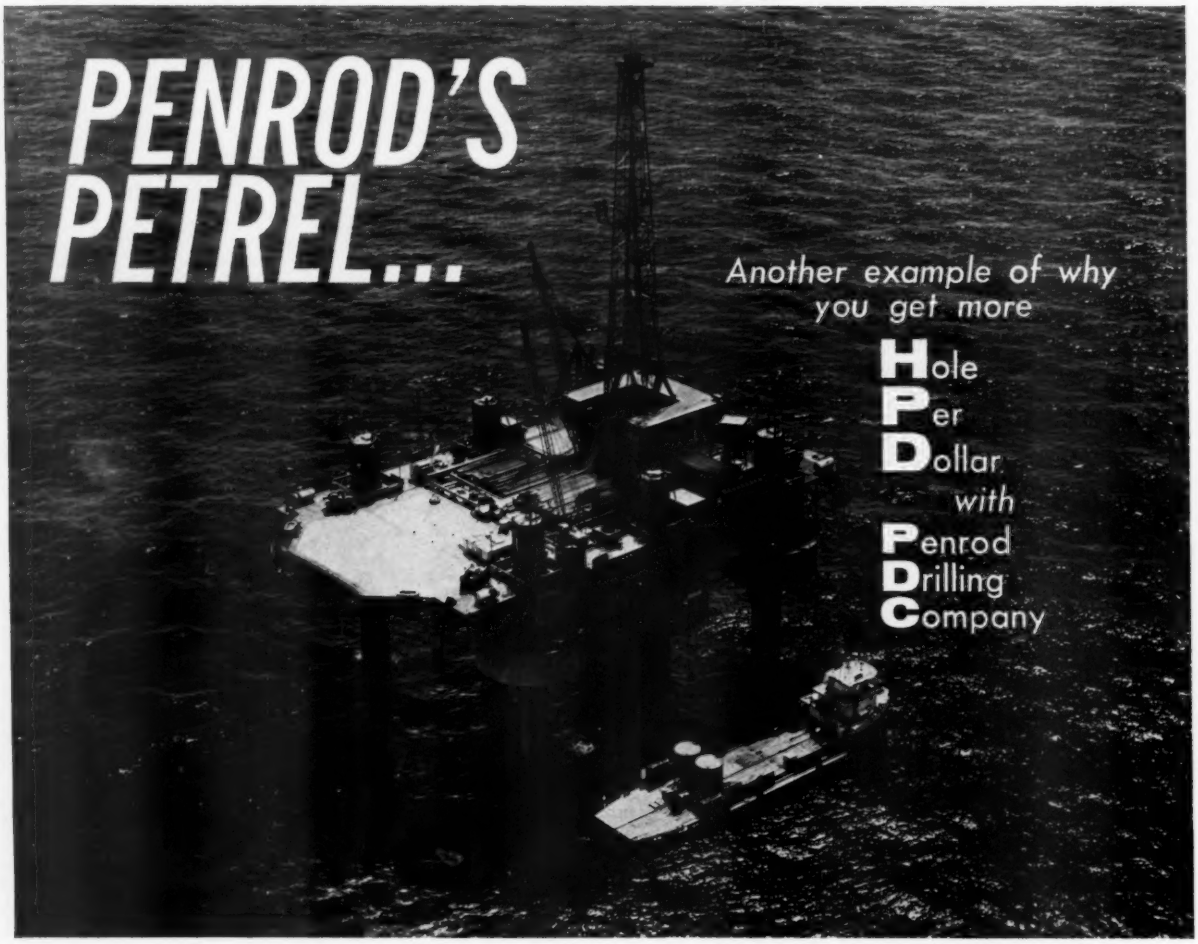


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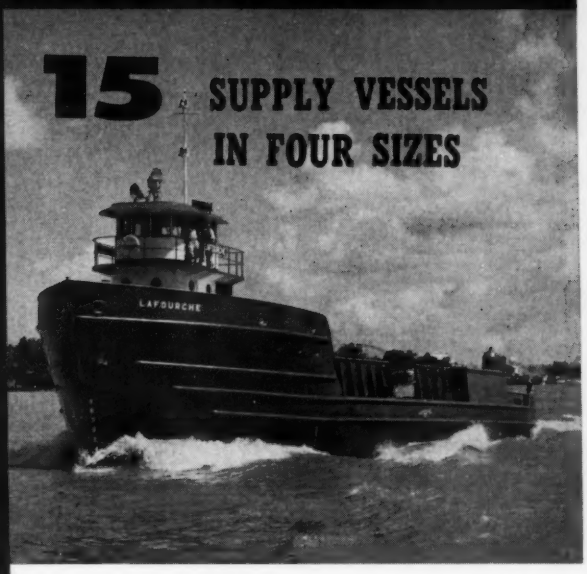

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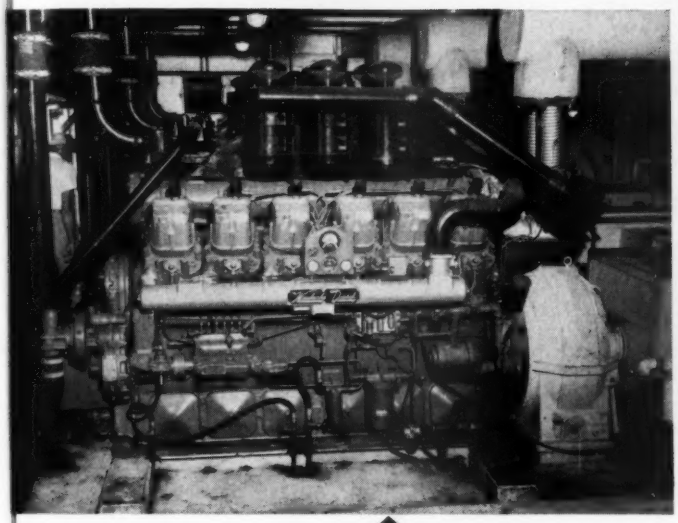
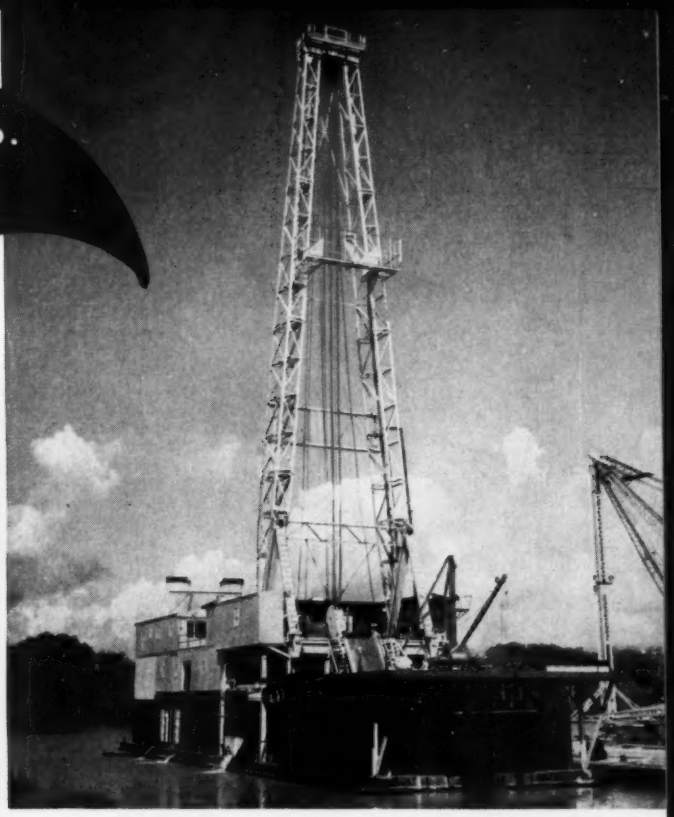
# NEW Two-R Drilling Co. BARGE No. 1



(drilling engines—drawworks and mud pumps)
Three Waukesha VLRDBSU Turbocharged 12-cyl. Diesels



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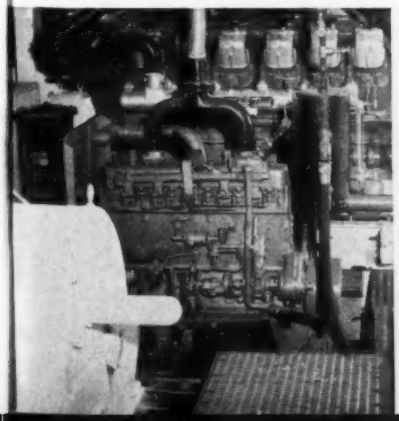
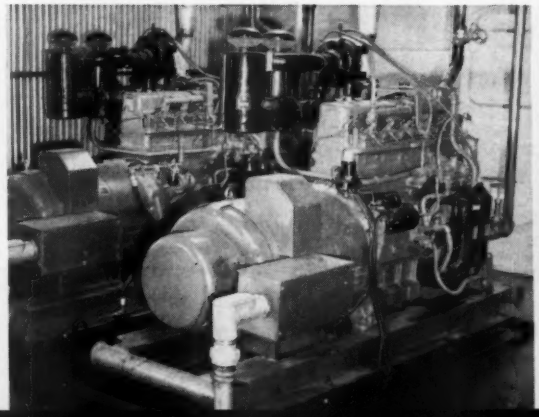
(rotary table drive and catworks)
Waukesha NKDBSU Turbocharged Diesel

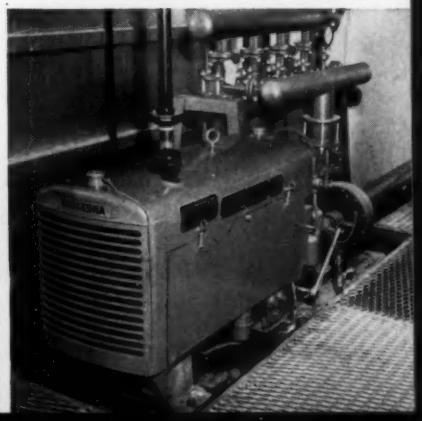
(mud mix pump)
Waukesha WAKDU Normal Diesel



(main electrical power) Two Waukesha WAKDBSU Turbocharged Diesel 125 KW Enginators



(de-sander unit)
Waukesha 190-DLCU Normal Diesel



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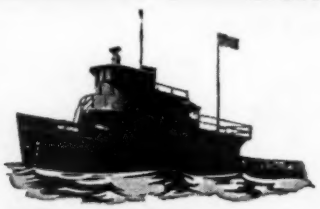

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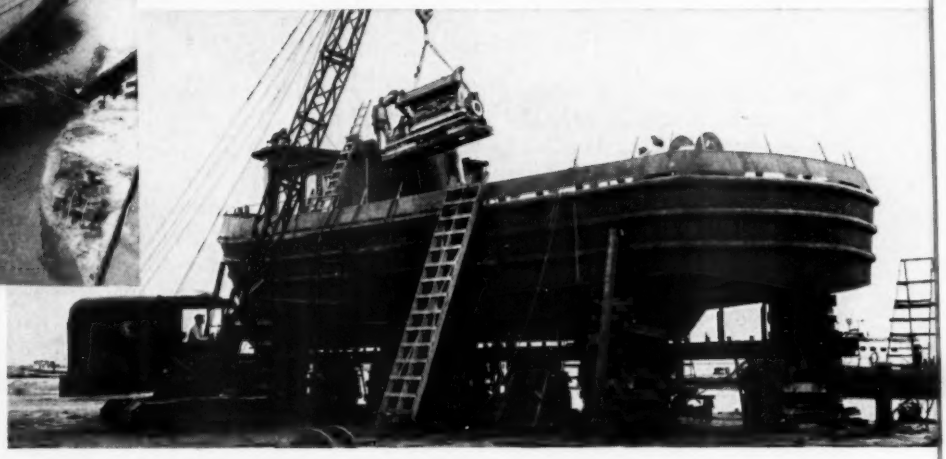

One of two Allis-Chalmers 300-hp turbocharged diesels being lowered into the 84-ft *Job Service*. Two Allis-Chalmers 20-kw diesels drive generators for auxiliary service.

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Way offshore . . .

## With the Publisher

You know, symbols can give a man courage. I remember as a long-jointed peckerwood kid, growing up out in West Texas, I wasn't the world's best calf or burro rider. One time, though, at about the age of ten, I fell heir to a hand-me-down spur my Uncle Em was about to throw away. To tell the truth, I think he had thrown it away, and I fished it out of the trash.

It wasn't worth a turkey-hoot. Had a busted shank and no rowel. But when I strapped it on, I felt like a real cowboy. So I screwed up my brave and got on a little old mean bronc my brother was breaking with a saddleblanket and horse collar—prepared to ride high, wide and handsome without pulling leather.

What actually happened, I got throwed into the horse trough on about the third jump.

---

The point of this yarn, accoutrements don't make you an expert. We could use our slide rules and calculators, multiply the average TD by the ID of the average overwater well drilled by the average marine drilling rig—there are 483 of them in such places as inshore and offshore Louisiana and Texas, California, the Bahamas, Cuba, Central America, Peru, Lake Maracaibo and the Gulf of Paria, Brazil, the China Sea, the Sea of Japan, the Persian Gulf—and come up with some real crystal-ball figures on how many wells will be drilled overwater in 1959.

As a matter of fact, we have, and the result is phenomenal—up in the eye-opening thousands. But lest you figure us as one-spur forecasters (from Spur, Texas, by the way), we are going to let the marine oil industry do its own forecasting.

---

You'll see it all in the January issue of **Offshore,** along with two big, smashing features that we feel safe in predicting will be referred to and talked about for a long time to come.

But . . .

We'll see you before Christmas 'fore we see you after the New Year!

**Long John Latham**

Reading & Bates Offshore Drilling Co. looks to

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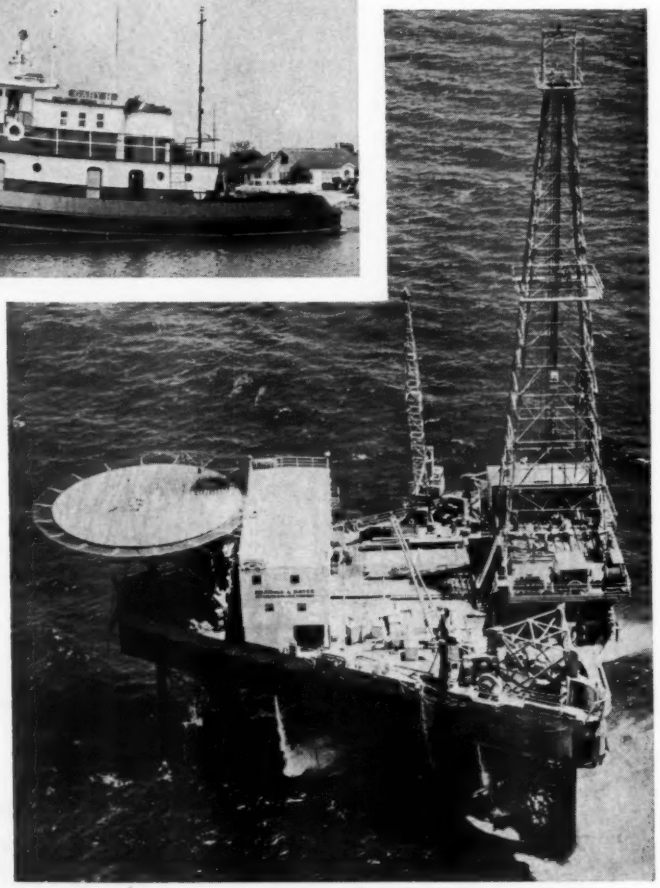

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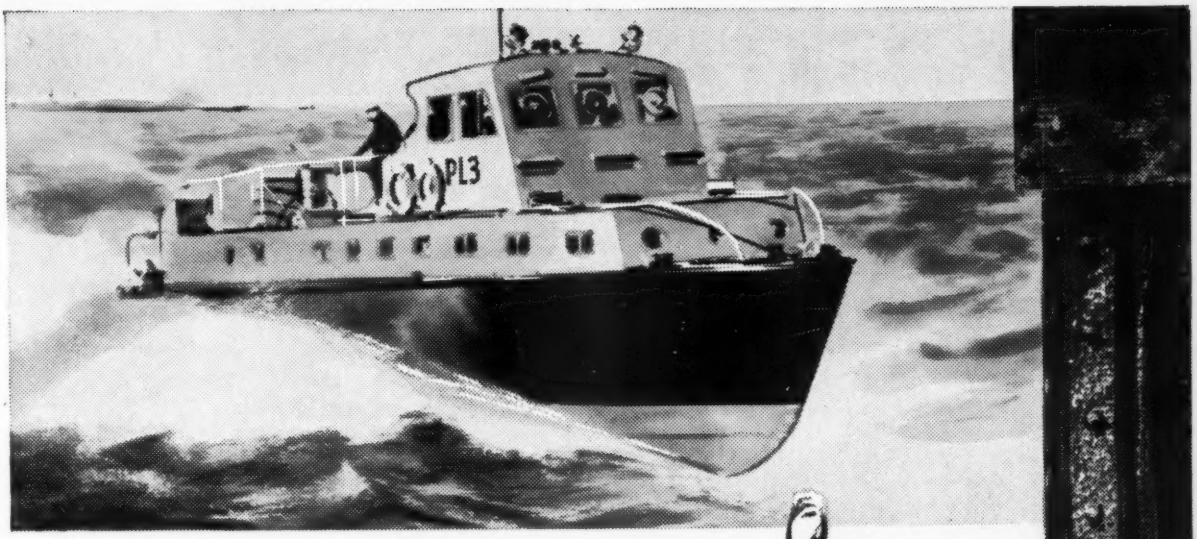

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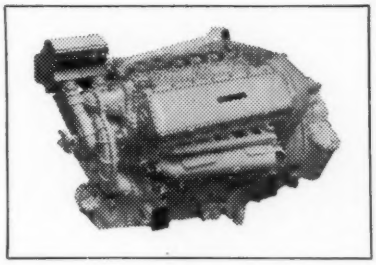

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The boat illustrated is one of the fleet of Thornycroft-built, twin Deltic powered, 50-passenger crew launches operated by the Shell Petroleum Company on Lake Maracaibo. Plans of Deltic powered crew boats suitable for Gulf operation are available.

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November, 1958 **Offshore** Vol. 9, No. 4

# Worst Offshore Fire Rages

**Awesome explosion and oilwell fire in West Delta Block 45 takes 7 lives—destroys multi-million dollar CATC platform**

BLOCK 45 of West Delta Area lies almost due west from the mouth of the Mississippi River. It is characterised by a variety of oil producing sands which made it possible for the CATC Group to develop the world's first four-string completion last summer.

Last month on a similar multiple platform nearby, a Nicklos Drilling Company crew was completing the second offshore quadruple completion when a violent explosion shook the structure.

What followed will probably go down as the worst offshore disaster of its kind in history. For survivors it was like a nightmare in technicolor. One said, "It happened too fast for anyone to know anything."

Twenty-two men either jumped or were blown from the 51-ft. high platform into the sea where most of them were picked up by a company crew boat. One man swam to another platform nearly a mile away.

On the multi-million dollar platform two of the seven wells were ignited, with flames shooting 100 ft. into the air.

Two of the three sections making up the 110 ft. by 146-ft. platform collapsed within 20 minutes from the heat and drilling equipment was destroyed. Debris later floated ashore at Grand Isle about ten miles away.

As the first wave of shock passed and officials began emerging upon the scene, it was thought that up to five wells must be burning; later, however, observers discovered that only the quadruple completion and a triple completion were afire while a third well was blowing salt water. The wells on the platform were producing 1530 bbls of oil per day and 950,000 cu. ft. of gas per day when the explosion occurred.

Pushing gas and oil to the surface where it fed the inferno were surface pressures ranging from 500

*(continued on page 17)*

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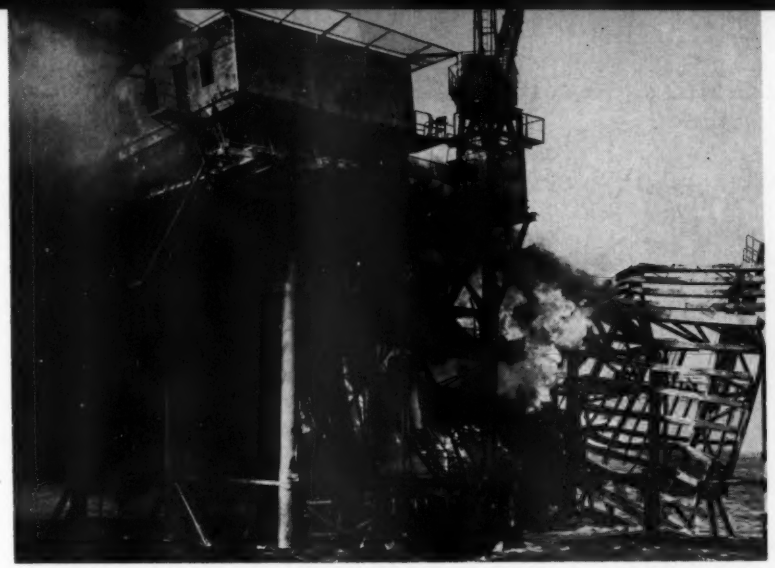

SOUTH SIDE of the 110 ft. by 146 ft. platform was the only section left standing and it contained the crew shack visible above. The house was later removed to clear the way for fire fighters.

## Offshore Fire Rages . . .

*(continued from page 15)*

to 2500 psi. Water depth at the location was 50 ft.

**Rescue efforts . . .** Out of seven men listed as missing, only one body was found. A search for the missing was the first order of the company officials, and it continued after hope of finding any of the missing alive had been abandoned.

### DEAD AND MISSING

T. P. Butler, driller, Liberty, Mississippi (known dead); E. A. Butler, Liberty, Mississippi; Dan Hogan, Harvey, Louisiana; Wallace A. Simmons, Houston, Texas; A. J. Johnson, Ellinger, Texas; G. J. Kidd, Beaumont, Texas; P. H. Puryear, Livingston, Texas.

**Fire fighters move in . . .** A call went out to Paul "Red" Adair, fire fighting expert and member of the Myron Kinley team. He flew to the scene from the Houston office and

*(continued on next page)*

A MULTI-WELL PLATFORM similar to the one that was destroyed stands nearby at the site of the world's first offshore quadruple completion. Wells are spaced 7½ ft. apart in two rows ten ft. apart with the wellheads all located in a rectangular area beneath the derrick.

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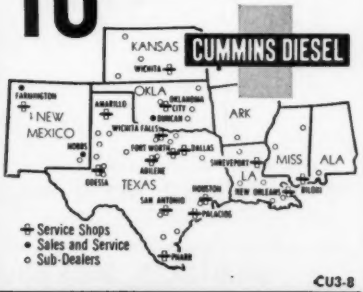


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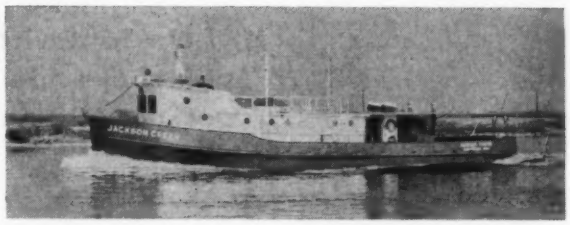

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## Offshore Fire Rages . . .

*(continued from preceding page)*

set up headquarters on a nearby platform while planning strategy. Later the drilling tender Ernie Miller was towed from Orange, Texas, to serve him as a base for operations.

A fire fighting barge was rigged up with high pressure hoses for cooling the twisted hot metal enough for dragging it away. While workmen began constructing two 105-ft.-long platforms close by for battling the flames from the surface, three mobile units were dispatched to the scene.

Strategy was to drill directional holes to the producing zones and kill off the flames by pumping in water, mud and cement.

**Mr. Gus II,** giant mobile drilling platform owned by C. G. Glasscock Drilling Company, Corpus Christi, was brought in from the Eugene Island area and anchored 1600 ft. east of the burning wells. It will drill to 9200 ft., where officials hope to bottom near perforations in one producing zone.

Moving in from Vermilion Block 86 about 100 mi. away where it was drilling a well for its owner, Zapata Off-Shore Company, was the **Vinegaroon,** another huge mobile unit. Plans called for it to anchor 1000 ft. east and to drill to about 8600 ft. to hit another producing sand.

Also brought in from the Vermilion area was Kermac **Rig 46.** It anchored about 1800 ft. NW of the burning platform and began to drill toward a bottom hole location 9500 ft. down.

At press time, the task of snuffing out the fire seemed destined to require some time. The presence of four intact wellheads on the fire ravaged platform complicated the procedure. In clearing the debris to get to the wellheads, workmen had to bend back separately the different parts of the wreckage and tear it loose preparatory to dragging it away.

Unofficial estimates placed the cost of extinguishing the flames in excess of $2 million.

**Causes . . .** Just what caused the explosion that set off the worst offshore oilwell fire in history has not been ascertained. As one official said, any number of things could have happened.

The crew was preparing to complete the four zone well and test tanks had been set up.

One survivor said a sand-clogged valve had been removed on the lower deck, and perhaps escaping gas was ignited.

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# Wildcats Are Drilling Ahead In Tidelands Off California

WATERS off California are getting busier every day as wildcats go down following resumption of leasing activity.

About a mile off the Santa Barbara coast Standard Oil Company of California, Western Operations, Inc. is drilling ahead on a 5500-acre Standard-Humble lease which cost the two holders over $7¼ million.

Standard-Western is using a $2.3 million stationary steel platform designed to drill up to 50 wells from the single location. Before positioning the platform, the partners drilled core holes which indicated there is a good chance of finding oil. (See page 47).

On another lease off Punta Gorda, California, Richfield Oil Corporation was to have spudded the first tidelands effort from its artificial island on October 1. The rock, tetrapod and earthen structure will accommodate up to 68 wells. The drilling island, which cost Richfield about $1.5 million to build, lies in 45 ft. waters about 8000 ft. off the shore of Seal Beach. Richfield, too, ascertained the presence of oil by drilling a number of core holes on its lease.

Phillips Petroleum Company has named Haney and Williams drilling contractor for a tidelands parcel it obtained in partnership with Kermac and Pauley at last July's lease sale. A McDermott barge will be converted as a drilling barge and Haney and Williams were expecting to have it ready to drill by mid-October.

**Pacific Driller No. 1,** the West Coast's first mobile unit which sat in dry dock for over a year during the leasing embargo, will drill the first wildcat on another of the new parcels off Santa Barbara County. This one, designated Block C, is held by the Standard-Humble partnership. It was one of five 3840-acre tracts for which bidders paid a record $55.5 million.

### Louisiana Operators Set Up Offshore Air Rescue Service

Marine oil operators off Louisiana will soon put into operation a special air rescue service.

Maps drawn up by Shell Oil Company's drafting department have been distributed. Shown on the maps are all existing permanent platforms along with information on the types of helicopter landing facilities available.

Also designated by symbols are the types of helicopters that would be available along with seaplane ramps, light beacons and other information.

### Japan's First Mobile Unit Ready to Drill First Test

Japan, which recently launched its first mobile unit, expects to have its initial wildcat at 4500 ft. by the middle of this month when winter forces cessation of drilling until next spring.

"Hakuryu" (White Dragon) was the name given the 2750-ton platform by the owner, Petroleum Resources Development Company, at its christening recently. Costing a total of $4 million, it was bought from R. G. LeTourneau, Inc. of Longview, Texas, and assembled in Akita Harbor, Japan. The three legged structure will drill on three structures discovered by seismic surveys about 2½ miles offshore from Akita on Japan's west coast.

The drilling program calls for 100 holes to be spotted about 1500 to 3000 ft. apart. The company expects to encounter oil at about 6000 ft. and feels it can develop a daily offshore production of 14,000 bbls. per day with the mobile unit.

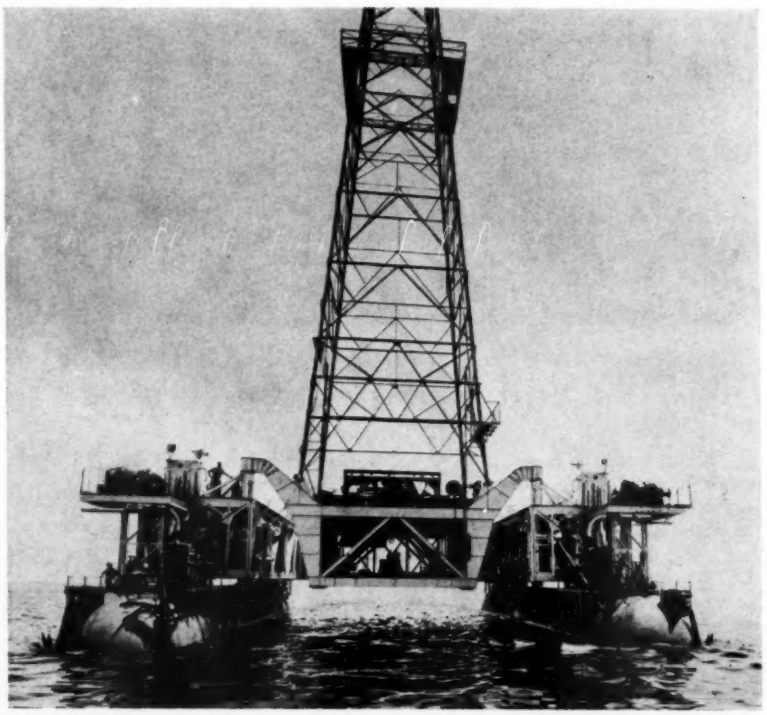
### Consolidated Cuban Gets Million Acre Andros Lease

A lease covering 1500 square mi. in the Bahamas has been acquired by Consolidated Cuban Petroleum Corporation.

Through an exchange of stock with Bolivian American Oil Company, Consolidated Cuban obtained exploration rights on about one million acres, making up about two-thirds of Andros Island, largest in the Bahamas group.

Consolidated Cuban makes the

*(continued on page 22)*



**A FLOATING RIG MOVER of advanced design is being tested in Lake Maracaibo, Venezuela, by Creole Petroleum Corporation. The rig mover, which cost over $900,000, makes it possible to move all drilling equipment, including the derrick, from one well site to the next.**

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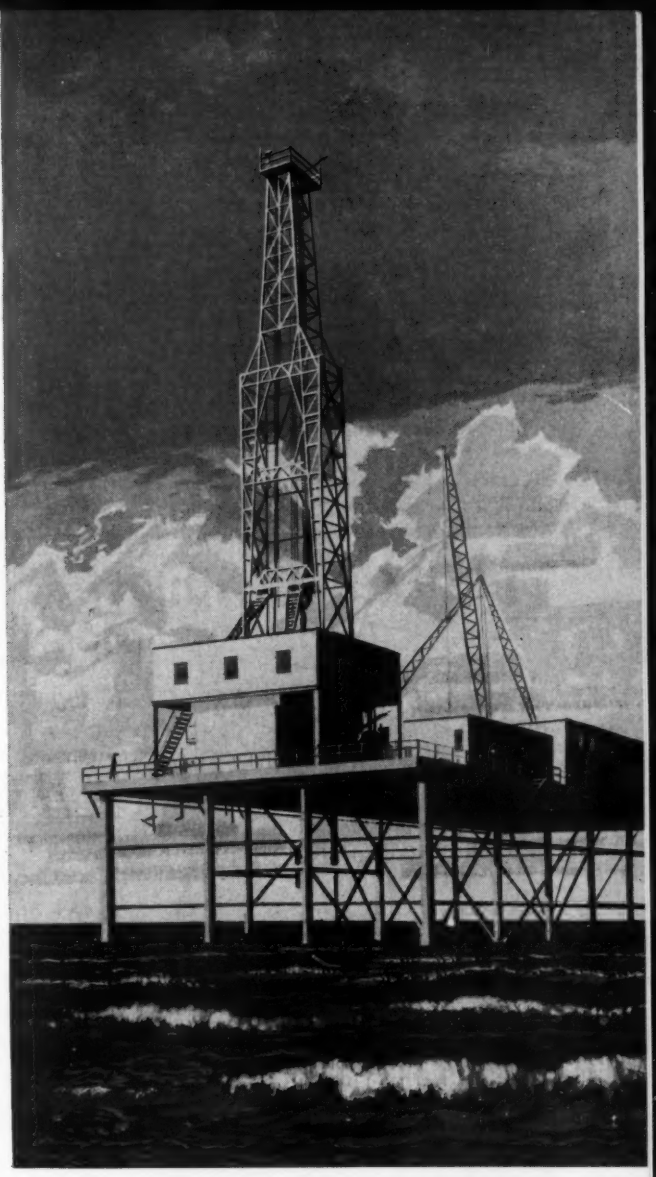

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News . . .

*(continued from page 20)*

third company to be granted oil exploration rights in the Bahamas. A $3 million offshore test is being drilled off Cay Sal Bank by Bahamas Gulf Oil Company and Bahamas California Oil Company.

## Bahamas

### Bunkering Terminal Being Built For Fueling Ships Offshore

First bunkering terminal in the Western Hemisphere for offshore fueling of ocean-going vessels is now under construction in Freeport, Grand Bahama Island in the Bahamas.

The new facility will be situated 81 mi. east of Palm Beach, Florida, in an industrial development created by the Grand Bahama Port Authority.

Bunker fuel will be delivered through an 18-in. submarine line at 5000 bbls. per hour, and two additional lines will deliver diesel fuel and potable water. Bunkering facilities were designed by the Ralph M. Parsons Company of Los Angeles and are being built by Marine Construction Company, Limited of Freeport.


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## Brazil

### Brazil Appears Sure Bet To Hit Planned Production

Brazil appears certain to attain its planned production of 17 million bbls. this year.

The country's largest field, the Reconcavo of Bahia, set a new record for crude production last June with over 1.5 million bbls. During the first six months of 1958 Brazil enjoyed a total production of 8,208,-206 bbls. of oil, whereas the production for the entire year in 1957 was only 10,106,269 bbls.

## California

### Lands Commission Finally Lets Fifth Santa Barbara Parcel

The California State Lands Commission finally decided to accept its fate, in the form of a $770,837 cash bonus for the fifth parcel put up for leasing off Santa Barbara County last July.

Four other blocks all brought multi-million dollar bonuses, but the top bid on 3840-acre Parcel B was the one by Humble Oil and Refining Company and Standard Oil of California. After several months of nursing its disappointment, the board finally gave the partners the green light.

### Signal, Hancock to Merge If Stockholders Approve

Two of the most aggressive independent offshore oil operators of international scope will join forces through a merger if the stockholders are in agreement.

The Boards of Directors for Signal Oil and Gas Company and Hancock Oil Company, both based in California, are working out the details after finding themselves unanimously in favor of the move.

### Standard Is One of Sponsors For TV Classroom Program

An unprecedented educational television experiment is being sponsored by Standard Oil Company of California and five other American corporations.

"Continental Classroom" is a national network program designed to provide college credits to about 15,000 high school science teachers. The program represents the nation's first coordinated effort to provide a planned, accredited college level course on a country-wide basis.

"Continental Classroom," which

began on NBC last October 6 at 6:30 a.m. Pacific time, will be offered five days a week in two semesters running through June 5. Dr. Harvey E. White, professor of physics at the University of California in Berkeley, will be the principal teacher.

## Iran

### Oil Firms Show Little Taste For Bonus-Partnership Deal

Iran is having trouble securing bidders for its unleased offshore acreage.

Quite a few companies would like to obtain some real estate in the Persian Gulf, but hardly for a cash bonus and a partnership deal.

Earlier this year such a deal was negotiated with Pan American International Oil Company. Pan American International agreed to pay Iran and National Oil Company 75 percent of the profits and tacked on a $25 million bonus.

Recent reports had an American oil company entering into an agreement with SIRIP, joint operating agency for NIOC and AGIP, The American company reportedly would spend $20 million exploring SIRIP's Iranian concession for half of the oil discovered.

## Louisiana

### New Morgan City Terminal Put Into Operation by Shell

Shell Oil Company operations in south-central Louisiana and offshore are being supplied by a newly opened central supply terminal at Morgan City, Louisiana.

Located on a 50-acre tract along Bayou Boeuf, 18 mi. from the Gulf of Mexico, the new terminal supplies pipe and other equipment for Shell's Donaldsonville, Lafayette and Marine Production divisions. It includes a modern office building, a warehouse and a pipe yard.

## Persian Gulf

### Weather Reporting System To Aid Persian Gulf Firms

Offshore operators in the Persian Gulf will soon be relieved of one major burden when a system of weather and wave reporting stations are completed. Oil companies in the region will share expenses of the project.

Information from the stations will be co-ordinated in London and will be very useful to companies planning underwater drilling operations. Local meteorological offices are already established in parts of the Gulf.

Earlier this year, when Abu Dhabi Marine Areas Limited positioned the **Adma Enterprise,** a meteorologist spent two months in the Abu Dhabi offshore area setting up weather reporting stations and providing forecasts for the critical period when the barge was moved into position. Such procedure will be eliminated by the new forecasting system.

### New $45 Million Terminal To Be Built on Persian Gulf

A floating terminal will be built by Iraq Petroleum Company at a cost of $45 million 20 mi. south of Fao, Persian Gulf oil port.

Two 32-in. submarine pipelines will connect the man-made island with shore. Up to 30,000 bls. of crude per hour will be maximum loading capacity for each of two berths.

*(continued on next page)*


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News . . .

*(continued from preceding page)*

## Peru

### Peru Opens Offshore Areas To Foreign Bids This Month

Outside companies will have a chance to bid on Peruvian offshore acreage November 22.

Competitive bidding was first opened last September, but for a two-month period only Peruvian firms were eligible. Acreage which is not applied for will become national reserve territory.

## Tulsa

### Industry Called on to Defend Percentage Depletion Formula

The oil industry has been called on to unite in fighting one of its great modern battles in defense of the percentage depletion provision of our oil and gas laws.

L. F. McCollum, President of Continental Oil Company, speaking before the annual meeting of the Texas Mid-Continent Oil and Gas Association said, "It is anticipated that there will be a full-scale hearing on percentage depletion in the next Congress. This should be looked upon as an opportunity to sell percentage depletion both to Congress and to the public."

McCollum received the association's Distinguished Service Award for 1958.

## Texas

### Texas Oil Allowables Hiked As Result of Shorter Month

Texas oil allowables for November were raised slightly, although the same producing pattern of eleven days was retained.

The raise in production, amounting to 61,465 bbls., resulted from a calendar differential. Wells will be idled only 19 days this month compared to 20 for October. Producers are permitted a total allowable of 3,000,401 bbls. of crude for the month.

### Murmanil Corporation Buys Control of Glasscock Firm

Murmanil Corporation of Dallas has purchased control of C. G. Glasscock Drilling Company, Corpus Christi, Texas, one of the best known offshore drilling firms operating in the Gulf of Mexico.

Out of the fourteen rigs which the Glasscock firm operates, the majority are barge mounted. Its best known mobile unit is also the world's largest, the 9000-ton **Mr. Gus II.** The mammoth barge set the existing water depth record for an offshore rig when it completed a wildcat in 136 ft. of water.

## Washington

### Supreme Court Will Decide Memphis Case This Sitting

Competing with the Tidelands controversy for top industry billing in the Supreme Court this term is the Memphis Case which is being heard a month earlier than originally scheduled.

National gas pipeline firms are appealing a November, 1957, decision by a District of Columbia Court of Appeals which required interstate pipeline companies to get approval of all their customers before increasing rates.

Gas industry leaders have indicated they will appeal to Congress should the Supreme Court decision go against them. Should the companies lose their appeal, they would have to alter rate making rules and refund $211 million in rate hikes collected while they were under suspension.


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# Hinson and Jurenev Replace Retiring Conoco Directors

Howard H. Hinson, Houston, and Serge B. Jurenev, New York, have been elected to the board of directors for Continental Oil Company.

The new board members replace James J. Cosgrove, chairman of the board, and E. F. Battson, both of New York, who resigned recently.

Hinson is vice president and general manager of Continental's foreign department. He came to Continental in 1948 as chief production research engineer at Ponca City, Okla., after eleven years with the U.S. Bureau of Mines at Amarillo, Texas.

Jurenev joined Continental at New York in 1942. He was head of the coordinating and planning department in Houston from 1949 to 1953, before returning to New York to become assistant to the chairman of the board.

K. W. Brill, New York City, has been elected vice president of Conoco. Formerly assistant to the vice president, he will continue to make his headquarters in New York.

### Hunter Re-elected President Of National Petroleum Group

Guy B. Hunter, chairman of the Board of Quaker State Oil Refining Corporation, was re-elected president of National Petroleum Association at the group's 56th annual meeting in Atlantic City, New Jersey.

Rexford S. Blazer, of Ashland Oil and Refining Corporation, was elected first vice president, and John E. Selden, of Pennzoil Division, South Penn Oil Company, was elected second vice president.

### Reading and Bates Appoints Land and Exploration Manager

I. J. Pierce recently joined Reading & Bates Offshore Drilling Company as manager of the firm's newly created land and exploration department, it was announced by J. W. Bates, Jr., president.

Pierce

Pierce was formerly division manager of the land and geological department of Phillips Petroleum Company in Oklahoma City. For 20 years he was associated with Phillips at various localities in the mid-continent and Canada.

He holds a BS degree in geological engineering from the University of Oklahoma.

### Zapata Appoints Stewart Assistant to Vice President

Nolan Stewart has joined Zapata Off-Shore Company as assistant to the vice president, announced Wayne H. Dean, vice president and manager of operations.

Stewart graduated from the United States Merchant Marine Academy in 1945 with a degree in marine engineering.

He served five years in the U.S. Merchant Marine where he obtained his chief engineer's license. In 1952, he joined Brown and Root Marine Operators as marine superintendent.

### Sun Announces Appointments At South American Division

Sun Oil Company has announced the following appointments at its Latin American Division, Caracas, Venezuela:

P. W. McFarland, formerly division chief geologist, appointed exploration manager.

L. C. Smith, appointed division chief geologist, Smith was previously assistant chief geologist.

L. M. Rucker, promoted from district paleontologist to regional paleontologist.

J. A. Waller, formerly district geophysicist, promoted to division geophysicist.

R. C. Weart, formerly with Sun's Physical Research Laboratories in Dallas, named research geologist.

### John Roth Elected to Dual High Post With Tidewater

John E. Roth has been elected a director and senior vice president of Tidewater Oil Company.

Roth

Roth succeeds to the posts left vacant by the recent death of Lloyd F. Bayer.

Prior to his election, Roth had served as administrative vice president for production, in charge of coordinating Tidewater's domestic and foreign exploration and production activities.

A native of Detroit, he was graduated from Cornell University in 1923, and also received a degree in mechanical engineering in 1924.

**NEW OFFICERS of the American Association of Oilwell Drilling Contractors, elected at the 18th annual meeting in Dallas in October are, back row, left to right: vice presidents A. Earl White, Mustang Drilling Corporation; W. W. Hawkins, Win Hawkins Drilling Company; Don Slape, Don Slape Drilling Company; H. Don Johnson, Carl B. King Drilling Company; Morris McDannald, Mac Drilling Company.**

**Front row, left to right: national vice president George P. Livermore, Livermore Drilling Company; president elect J. Zeppa, Delta Drilling Company; incumbent president J. U. Teague, Columbia Drilling Company; executive vice president Brad Mills, A.A.O.D.C.; secretary-treasurer W. L. McClusky, M. J. Delaney Company.**

**Year of progress brings . . .**

# New Production Techniques

**By TOM SNEED, Editor**

IN THE OCTOBER ISSUE the editors of OFFSHORE started a special report to the petroleum industry describing significant advances that have been made in drilling and completing techniques and tools within the past year. Once started it was soon realized that petroleum technology has made such gigantic strides within the past year that it would take more than the 12 pages allotted to describe even the most important new innovations.

Thus OFFSHORE is continuing this special report-to-readers another 12 pages and adding descriptions of some of the most important production ideas to come forth in the past year.

These techniques and tools came into being because they are economic solutions to pressing problems confronting the petroleum industry. A close look at these pages may uncover a method or tool that will economically solve one of your drilling, completing or production problems.

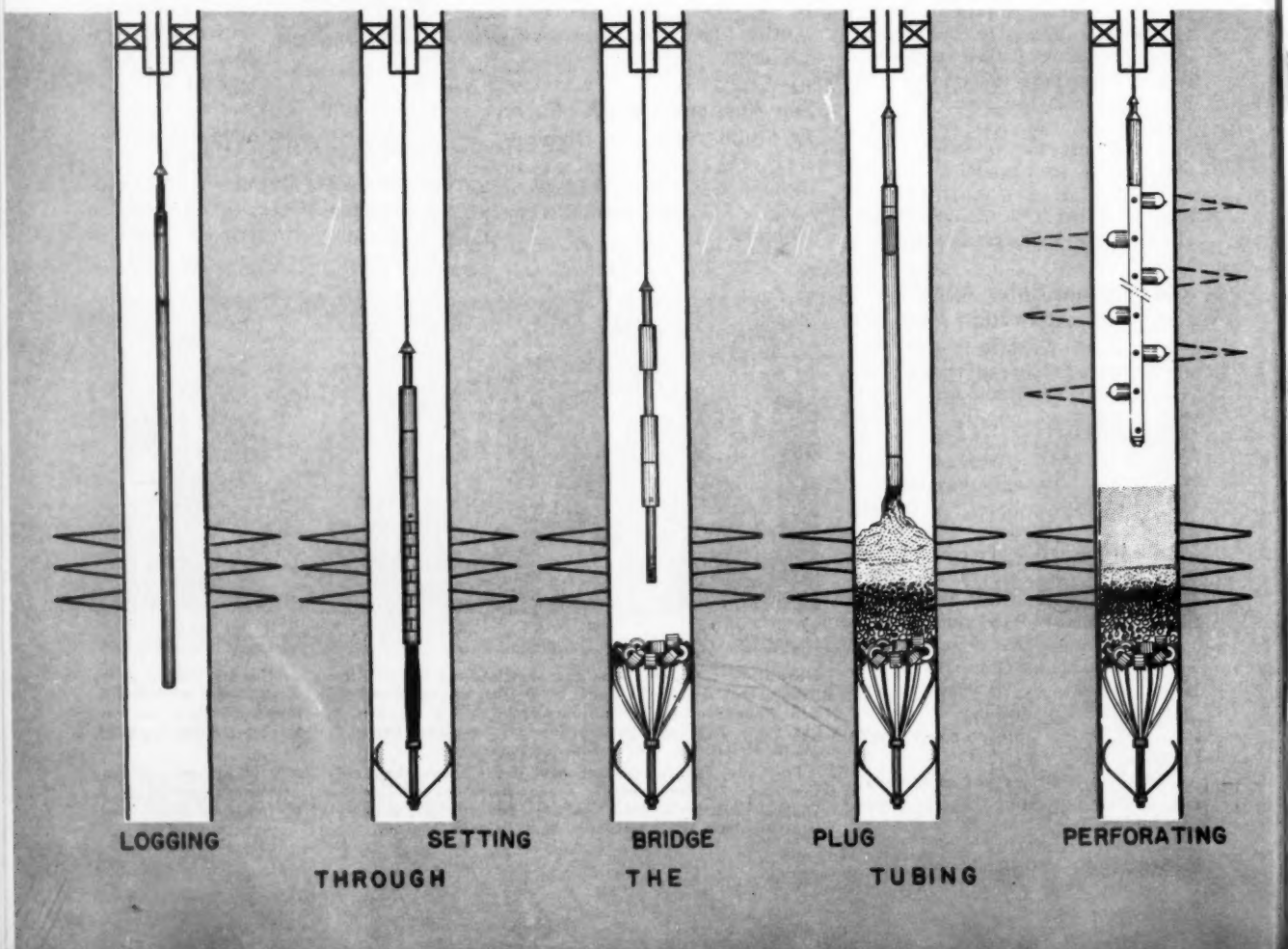
## 1. New method of working over wells through the tubing

NEW THROUGH-TUBING TOOLS developed by Great Lakes Petroleum Services, Inc. make almost any well a permanent completion. If the bottom of the tubing is open above the uppermost productive zone, it is possible to plug back and re-complete without using a workover rig or pulling the tubing.

The cost savings is substantial. Recently GLPS worked over three 10,000-ft Gulf Coast wells at a cost of $1900 each. The savings was $3000 to $6000 per well.

The company has four instruments that run through 2-in. tubing on electric wire lines. They are: 1. Radiation logging instrument with collar locator; 2. Through-tubing dump bailer; 3. A through-tubing bridge plug and 4. A through-tubing swing jet perforating gun.

Newest of these is the through-tubing bridge plug. It is set by a small charge fired electrically from the surface. Upon firing, the aluminum ribs in the device expand in "bird cage" fashion to grip the casing walls. Aluminum segments fall on top of this "cage" to support sand, gravel and cement plug. A step by step procedure of this type wire line workover is shown below.



in the internal phase are viscous and act as a fracturing fluid tending to enter the larger pores of the formation, enlarging them further and making connecting channels, thus greatly increasing the flow area of the well.

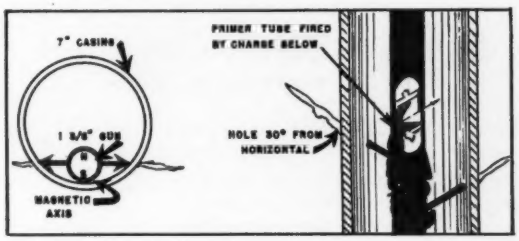
Surface active agents in the emulsions remove silicate particles within and on the face of the formation by shrinking them and keeping them at a reduced size so that they are washed out of the well by the produced well fluids.

## 7. Through-tubing gun simplifies stand-off

INCREASED MULTIPLE COMPLETIONS have brought about the development of a slim new fixed-jet gun that runs through 1½ in. tubing.

Schlumberger's new gun has no moving parts but contains a magnetic aligning tool that fixes the gun to the casing wall below the tubing prior to firing.

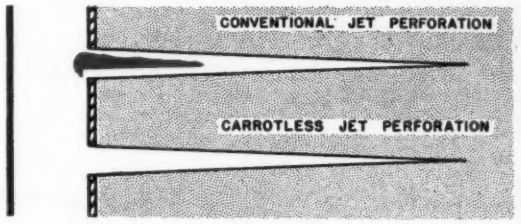
Jets are set 90° to each side of this magnetic axis, giving the smallest clearance possible—for increased penetration, no matter how large the casing.



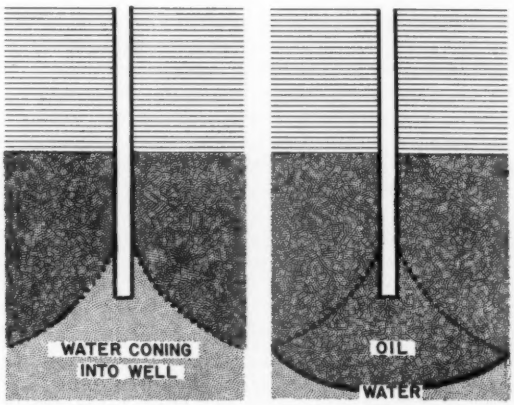

## 8. Carrotless jet charge

A CARROT SHAPED SLUG of molten metal, the residue from the jet charge liner not utilized in the jet stream, is sometimes left by jet charges. These carrots can block perforations.

Jet Research Center, Inc. has developed a new type liner that completely disintegrates after furnishing the metal for the jet stream, leaving no surplus metal to form hole blocking carrots.




## 9. Surfactant seals off water entry into hole




WATER CONING AND FINGERING in active water drive systems, water from a channeled primary cement job, water stringers and casing leaks are all water problems that reduce production, increase corrosion and create large water disposal problems for operators.

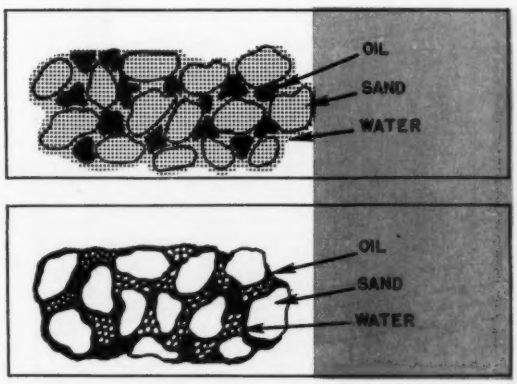
After years of experimentation by many, The Western Company of Midland, Texas, has developed a surfactant treatment that selectively seals out water while allowing oil to flow freely in formations having intergranular, intercrystalline or small tight-fracture type porosity.

An oil treated with a surfactant is injected into the pore spaces of the producing formation. The surfactant changes the pore walls from water-wet to oil-wet. After treatment, any water entering a pore becomes the internal phase of a water-in-oil type emulsion. Thus the droplets of water act as ball check valves within the pore openings when water tries to pass through the pores.

Crude oil is completely miscible with the treating fluid and no block will form in a zone of continuous oil saturation.

In treating, a packer is set just above the producing sand. Well is produced rapidly to flush water out of the bore hole then surfactant treated oil is slowly injected into the formation. Fluid is flushed further back into the formation by a slight overflush.

After treatment the well is swabbed in, re-



moving the overflush and causing the formation liquids to again flow toward the well bore. Wherever water comes into contact with the treated solution, a block is formed. In zones containing continuous oil saturation, no droplets are formed and the treating fluid is flushed out of the well by the produced crude, as the well is immediately returned to production.

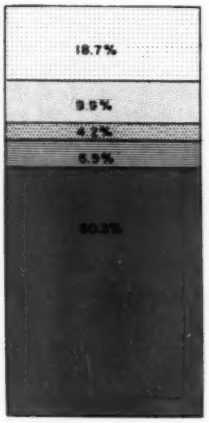
# Increasing recovery

## 10. Fluid injection increases U. S. recovery 43%

WITH THE DECLINE in exploratory drilling in the U. S. the 13.1 billion barrels of oil recoverable by fluid injection becomes increasingly important to the country's economy.

At present nearly three-quarters of the nations wells are classified as stripper or marginal wells and secondary recovery is becoming necessary to keep fields operating. Already recoverable reserves by fluid injection methods are greater than the primary reserves in 10 states.

Still, 67% of the nations oil will be left for recovery by presently uneconomic or undiscovered secondary recovery methods.




Of the 309.9 billion barrels of oil originally in U. S. reservoirs:

—57.8 billion barrels are already produced;

—30.6 billion barrels are primary reserves remaining;

—13.1 billion barrels may be recovered by present fluid injection methods;

—21.4 billion barrels are not economically recoverable by present fluid injection methods;

—187.0 billion barrels are unrecoverable by present methods.

## 11. Miscible phase recovery proving successful

FOR YEARS IT HAS BEEN KNOWN that capillary forces present in a porous rock are responsible for the rock holding the oil back and preventing its displacement even under the best natural drive or conventional secondary-recovery conditions.

These capillary forces that tend to retain the oil are not present if the oil is pushed by a liquid that is miscible with oil.

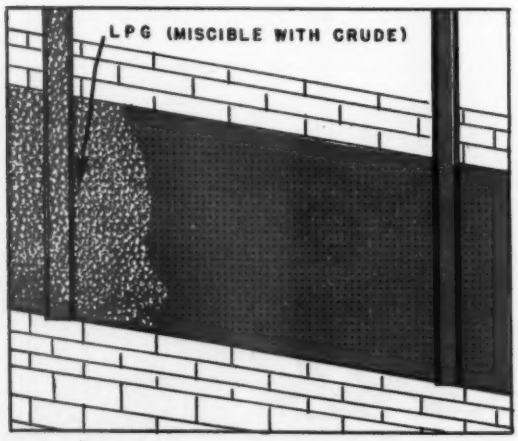
By using a solvent which is miscible in the oil, as a displacing material, the oil in a reservoir can be displaced from the rock with great efficiency. The big catch has been that oil-miscible solvents are expensive. Until recently, miscible phase recovery was believed to be uneconomic.

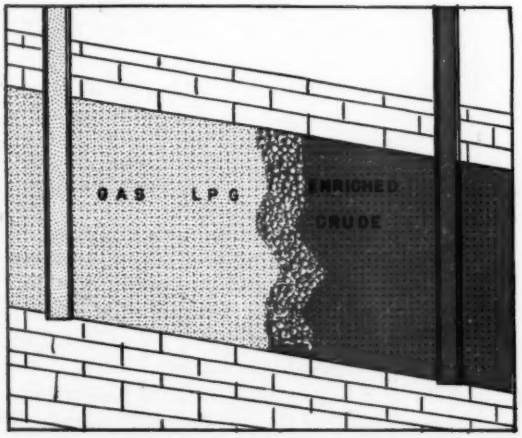
First extensive tests of the miscible drive process were in areas having an excess of unmarketable LPG, either propane or butane. The excess LPG was being stored underground in depleted reservoirs. An attempt was made to solve two problems, storage of the LPG and the flushing of a reservoir.

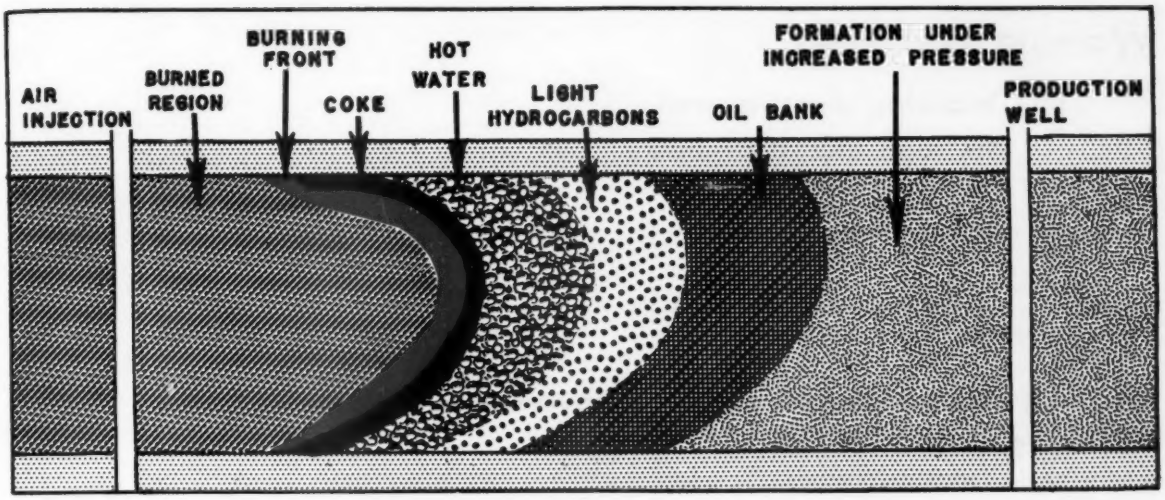
LPG injection worked well in each trial, greatly increasing the flow of nearby production wells. Later dry natural gas injection was started behind the LPG bank. Dry gas is miscible with the LPG, and it is relatively inexpensive.

Recent inovations have been to follow up gas injection with compressed air or water in order to eventually recover all marketable products from the formation.

Miscible phase recovery has been tested in such widely scattered areas as California, Peru and Texas and has been highly successful in almost every test.






## 12. Fire Flood-In Situ Combustion

TESTED IN 10 STATES, thermal recovery has proven highly successful in the percentage of oil recovered.

The fire flood process calls for injection of large amounts of air into the formation to establish a continuous gas phase between injection and production wells. Formation is then ignited.

Air is continuously injected in order to keep the burning front supplied with oxygen and to drive the burning front, hot gasses and liquid hydrocarbons toward the production wells.

Crude oil immediately ahead of the burning front is carbonized to produce a coke-like deposit on the sand. This deposit is the principle fuel of the front.

Heat is transferred from the combustion front to the oil in the reservoir by conduction, by formation water turned to steam, and the light oils distilled ahead of the burning front.

An ever growing oil bank is swept before the combustion front to the production wells.

## 13. Bottom hole heater & submersible pump

INCREASED PRODUCTION of from 200-600% has been achieved by the use of a combination heater and down-hole pump in Pennsylvania middle district formations producing paraffin.

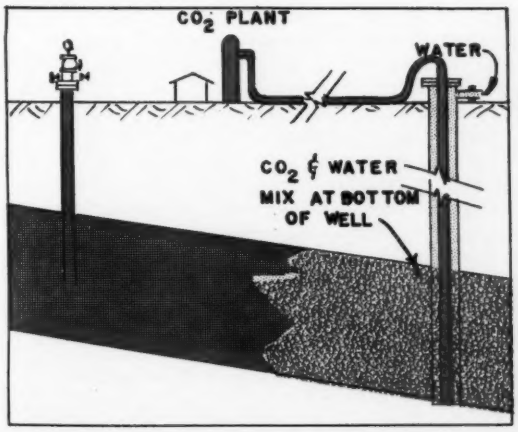
Heating unit is an enclosed heating coil with thermostat, maximum-minimum control, and totally enclosed circulating pump. Unit is coupled to the power source with an eight conductor cable, allowing surface control of the direction of circulation, and temperature of heating unit.

## 14. Big carbonated water flood started in Oklahoma

FIRST FULL-SCALE carbon dioxide flood in the nation was started earlier this year in the Bartlesville-Dewey field near Bartlesville, Oklahoma.

After years of lab work and pilot projects Oil Recovery Corporation has developed a process using carbon dioxide and water as a flooding agent which is claimed equal to miscible-phase flooding agents in its formation flushing effect.

The $CO_2$ forms surface-active agents in the formation that help sweep more oil and gas from sand surfaces. Agents are formed by reaction of the carbonated water and the hydrocarbons and minerals in the sand.



## 15. Working over a well through the flow line

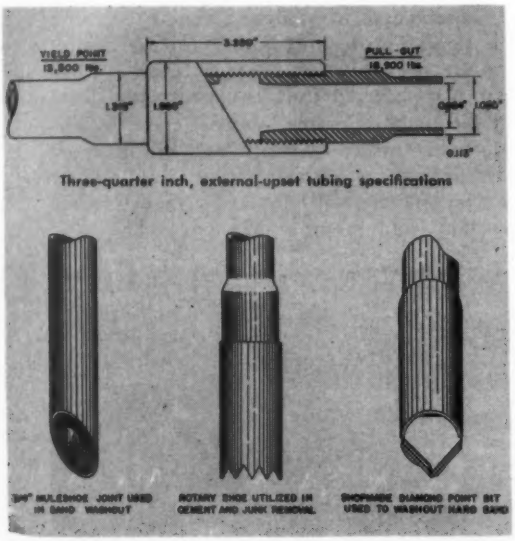
AT LEAST TWO major producers are working on wire-line workover methods, which would allow workover of any number of offshore wells from a single central gathering platform.

One of these producers has successfully conducted all of the workover operations, except sand washing, through 6000 ft. of flow line on its experimental land-based wells. And, since this company currently favors down-hole sand consolidation, it is not perturbed about the sand-wash limitation.

This method, if perfected for offshore use, will greatly reduce present offshore workover costs. The method would also be ideally suited for servicing any future wells which are completed underwater.

## 16. Gulf saves $552,155 on 71 workovers of overwater wells using ¾-in. tubing

A NEW WORKOVER METHOD has been used by Gulf Oil Corporation to save over a half million dollars on 71 South Louisiana inshore wells. Three-quarter inch tubing run through 2-in. production tubing was used to clean sand from 58 wells, plugback and recomplete 11 wells, squeeze treat two wells for sand control and acidize several other wells.




Gulf's concentric-tubing operations proved to have a number of advantages over wireline workovers.

1) Conventional completion equipment was all that was needed, saving the higher cost of a permanent-type completion installation.

2) Hazards of wire-line work were eliminated. Only four tubing separations occurred. Fish were easily caught with a spear.

3) Squeeze pressures during cementing were not confined to the pressure rating of the casing. All pressure was contained within the tubing and below the production packer.

4) Sand removal was completed much faster and offered greater flexibility. Average rate of sand cleanout on 58 jobs was 68 ft. per hour.

5) Workover of the lower zone in a single-string dually completed well was done without disturbing the upper zone.

6) Limitation of sand coverage is not dependent upon the amount of 1-in. aluminum pipe that can be safely handled.

7) Concentric-tubing workover costs were from 1/10 to 1/4 the costs of conventional wireline workovers.

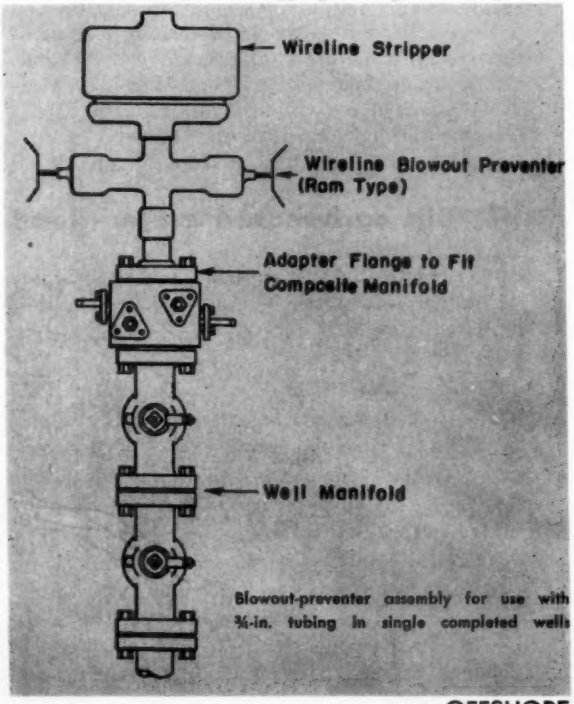
**Equipment requirements . . .** All that concentric-tubing workovers required in the way of wellhead equipment was that the production tubing be open-ended, full-opening, and bottomed above all desirable completion intervals.

**Tubing . . .** Basic tool of Gulf's concentric-tubing system was the ¾-in. EUE J-55 tubing used for the workovers.

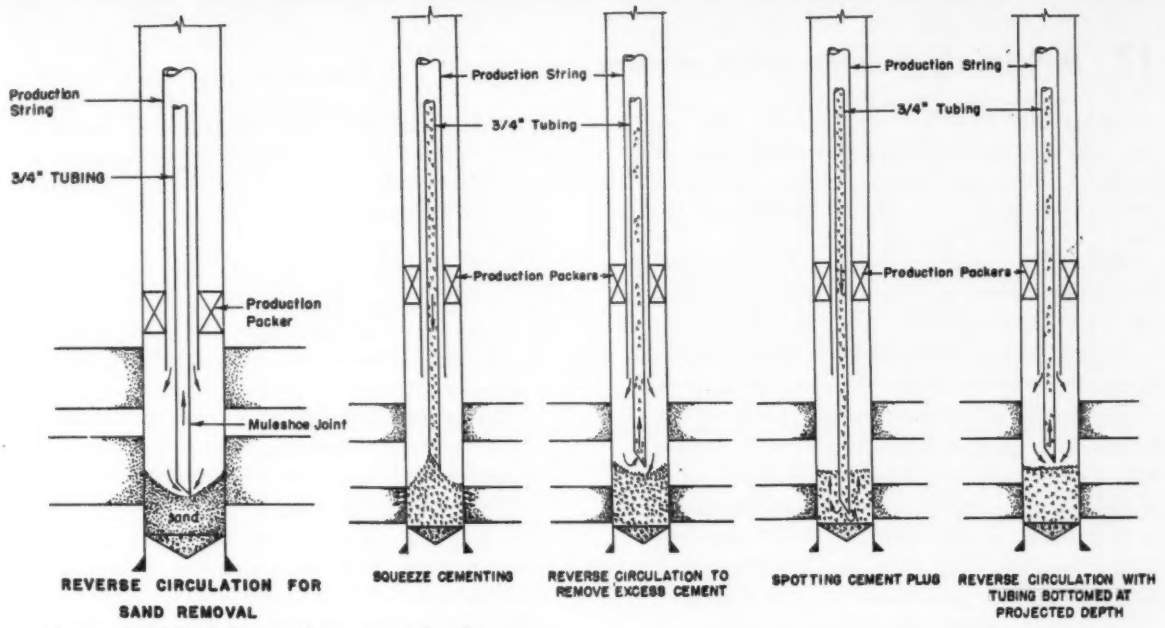
**Blowout control . . .** Blowout protection was afforded by a hand-operated 2½-in. id ram-type wire-line preventer equipped with ¾-in. pipe rams surmounted by a 2½-in. wire-line stripper.

**Operating equipment . . .** Double pipe mast-type pulling units were used to handle the ¾-in. tubing. Because of the high friction loss in small outside diameter tubing work, a triplex pump was required.

Cementing, well logging, and perforating tech-




Blowout-preventer assembly for use with ¾-in. tubing in single completed wells



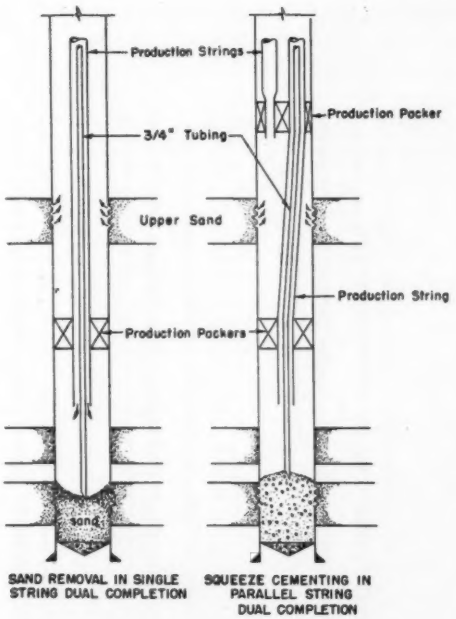

niques developed by service companies for permanent-type well completion workovers were used.

**Sand removal . . .** Three-quarter inch tubing was fitted with a mule-shoe joint and run through the 2-in. production tubing. In an average well of 8000 ft., salt water was circulated at 15 gal. per minute under 2500 psi.

**Squeeze cementing . . .** After cleanout, tubing was bottomed at the projected top of the cement plug, and slurry pumped down the tubing. Upon displacement of the ¾-in. tubing with cement the blowout preventers were closed and the cement squeezed into the formation. Maximum squeeze pressure varied from 2000 to 2700 psi pump pressure.

**Economics . . .** Average cost of Gulf's cleanout operation was $1420, cost of plugback and recompletion operations was $5969. Compare these figures with estimated average wireline costs of $10,000 for cleanouts and from $15,000 to $20,000 for plugback and recompletions.

Text and illustrations were excerpted from a paper titled "Report On The Methods And Results of Concentric-Tubing Workovers" by R. J. Goeken, Gulf Oil Corporation, Triumph, Louisiana. Paper was presented at the spring meeting of the Southern District Division of Production of the American Petroleum Institute in Houston February 26-28, 1958.




**TYPICAL CASE HISTORIES**

| Well No. | WELL DATA | | | | Job Category | Actual Cost | Est. Cost w/Rig | Est. Net Savings | Results | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| | Tbg. | Csg. | Perfs. | Type Compl. | | | | | | |
| 3 | 2" | 5½" | 7938–7943' | Dual-Single String | Sand Removal | $2,383 | $15,000 | $12,617 | Wash sand and mud from tubing and well bore, acidized and restored production. | Well continued to produce without difficulty. |
| 13 | 2" | 5½" | 7468–7475' | Single Completion | Sand Removal | $1,768 | $10,000 | $ 8,232 | Washed out sand to top of fish (169' of 1" Al. pipe). Ran fishing tool on swab line, recovered fish and completed sand removal, restored production. | Aluminum pipe lost in hole during previous work utilizing wire line methods. |
| 27 | 2" | 5½" | 7170–7174' | Single Completion | Plugback & Set Cement Removal. | $7,208 | ..... | ..... | Washed out sand from tbg. and well bore, squeeze cemented perfs. 7264-70'. Tagged cement plug 170' high drilled out set cement 7030-7200', utilizing super mud acid. Perforated 7170-74'. Sanded up on gas lift. | This workover exemplified the use of ¾" tbg. in set cement removal. Cement was drilled at the rate of 4' per hour with 15 gals. acid required per ft. of cement in 5½" casing. |

## 17. Multiple job-retrievable packer

A TIME SAVING TOOL that eliminates the necessity of round trips with either drill string or tubing during completion or workover operations has been designed and tested by Halliburton Oil Well Cementing Company.

This tool is a new retrievable valve tester used with a multi-purpose, hook-wall type, retrievable, test-treat-squeeze packer.

The retrievable valve tester may be opened and closed to provide bottom hole control in much the same manner as conventional testing tools. A bottom-hole choke provides pressure data, including closed-in-pressure, which is recorded on a sensitive bottom-hole pressure recording device.

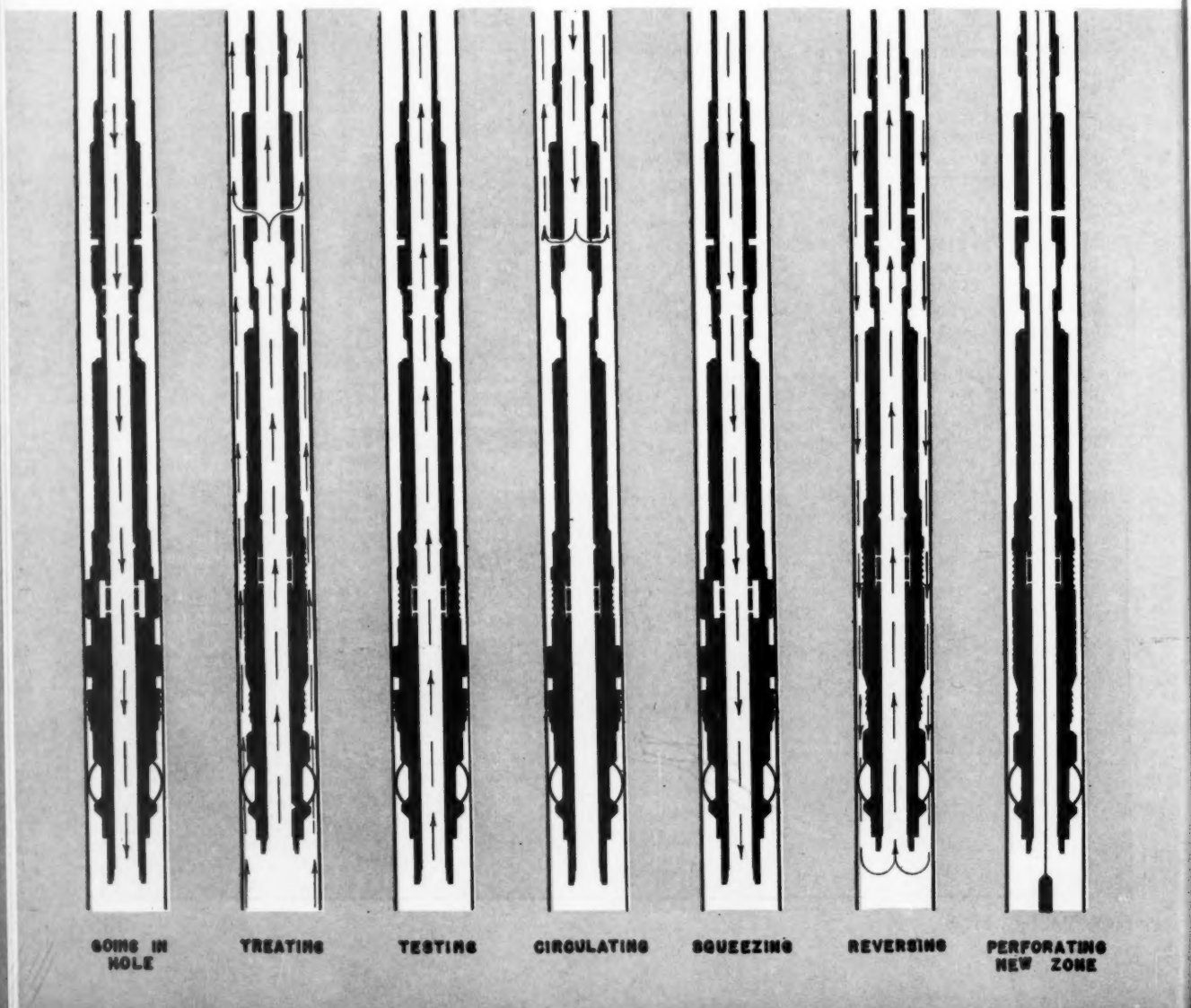
Tests may be evaluated without removing tubing from the well. Formation fluid recovered in the tubing can be reverse circulated if desired, carrying the pressure recording device out of the hole immediately after testing operations are complete.

Repeated operations involving the use of the retrievable valve tester may be performed without removing tubing from the well by resetting the valve tester by either wire-line or pumping methods.

Retrievable packer is set by applying right-hand torque in the pipe and setting down tubing weight. This action causes the mechanical slips to engage the wall of the casing. These slips then support the tubing weight required to compress the packer rubbers to cause them to seal against the casing. These slips also support any hydraulic load caused by pressure above the packer, as in formation testing operations.

Schematic diagrams of the packer and tester below show the direction of flow during several operations.

Hundreds of field tests have demonstrated a wide variety of uses for the new tool.



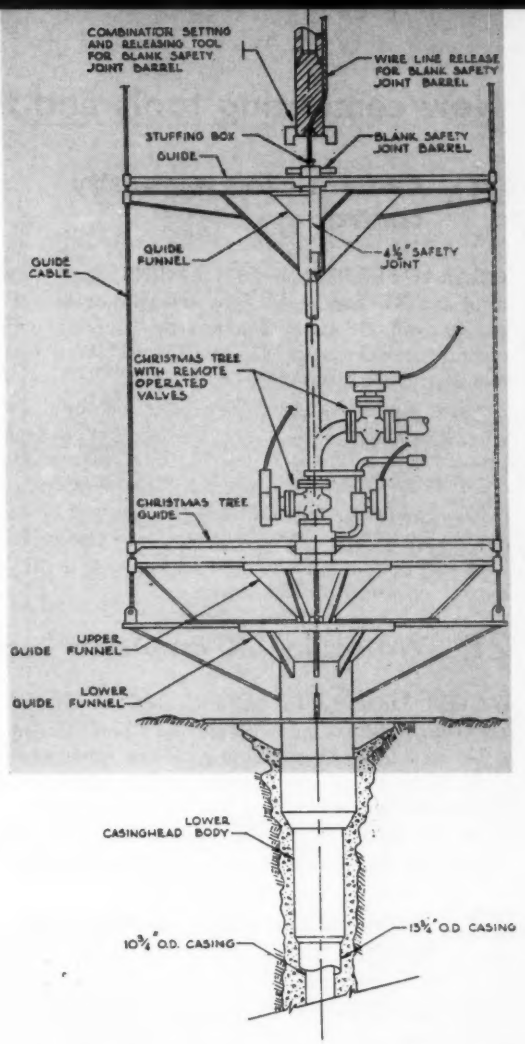
## 18. Working over wells on the ocean floor

MAIN DIFFERENCE between working over a well completed under water and one completed at the surface is controlled access. On the underwater wellhead shown in the illustration, workover operations are carried out from a floating vessel or mobile drilling unit. This equipment was developed by McEvoy Company in conjunction with Sea-Mole, Inc., which has a complete method for floating drilling and underwater completion.

Extension above the remote operated master valve provides space for wireline tools to be installed as does a lubricator on surface equipment. At the top of this tube is a funnel and small remote connection. A blank is used as the upper portion of the remote connection during normal production operations. This blank portion of the connection seals off the upper end of the tube and has a remote releasing cable. This cable and the two guide cables are connected to a buoy after the well has been completed.

When the well is to be worked over, the workover unit is moved on location, using the marker buoy as a guide.

A hydraulic operated control gate is lowered down the guide cables and attached to the upper end of the tree with the remote connection. The desired tool is lowered through the control gate into the tubular extension above the master valve. The cable rams are closed on the control gate, together with the wing valve of the tree. Master valve is then opened, providing controlled access for the tool inside the pressurized tubing bore.

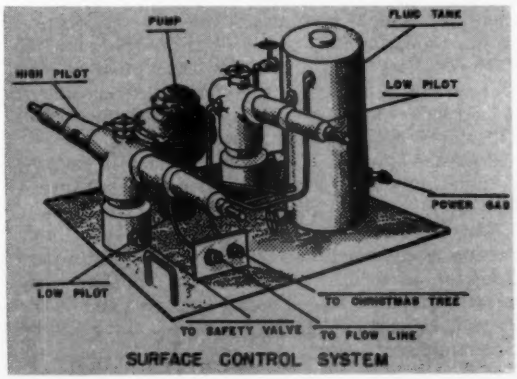



## 19. Surface controlled subsurface shut-in device

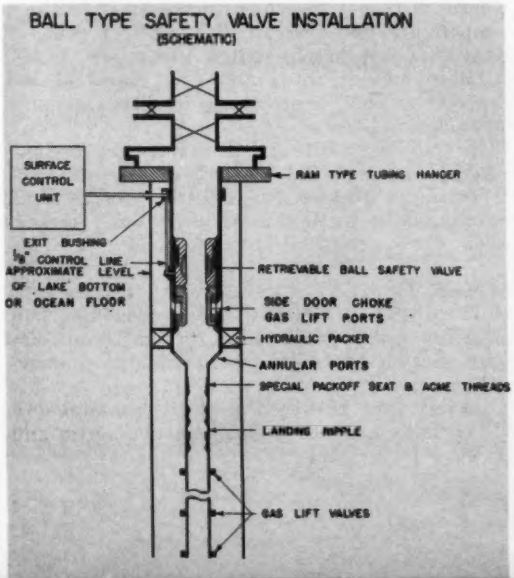
NOW IN USE OFFSHORE in the Gulf of Mexico, Pacific Ocean, Lake Maracaibo, and the Persian Gulf is a new surface controlled subsurface safety device which may prove to be the answer to blowouts due to damaged wellheads, ruptured flow lines due to clogging and pressure buildup and polution from leaks in wellheads or flow lines.

This new system was designed by Otis Engineering Company and has already proved itself several times, shuting off the well when wellheads were damaged or other emergencies occured.

Safety device has a surface hydraulic system mounted near the wellhead which keeps a constant pressure holding open a ball-check valve located 200-300 ft. below the mud line. Surface unit has lines connecting to the christmas tree and flow line. If the pressures in either of these areas becomes unusually high or low, pilot valves release the pressure on the hydraulic system automatically shutting in the well.

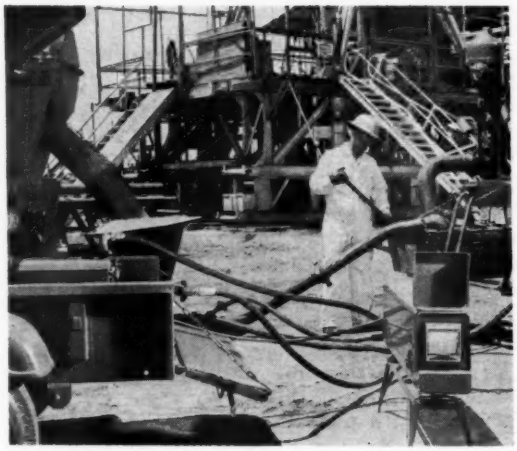


SURFACE CONTROL SYSTEM



# New cementing tools and techniques

## 20. Cement slurry density control



CHARACTERISTICS OF CEMENT slurry and mud can be checked by sight and constantly controlled with the aid of a new type "Densometer" recently introduced by Halliburton Oil Well Cementing Company.

Since the cement to water ratio measured by the Densometer is so important to the physical properties of both the slurry and final set cement, constant control of this ratio is highly desirable.

New additives to improve the properties of muds and cements for a varity of special conditions also accentuates the need for constant density control afforded by this device.

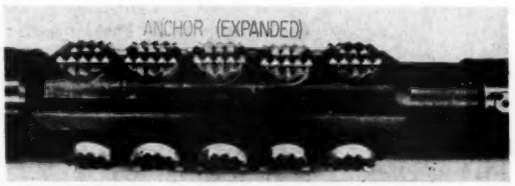
## 21. Water in oil emulsion cement

WATER DROPLETS SUSPENDED in an oil-base cement slurry allow Magnolia's new cement to be used in zones containing clay or other normally water sensitive materials without premature setting due to rapid water loss to the formation, or restricted oil flow due to swelling clays.

Inverted emulsion cement is made up with the water-in-oil as the cement carrier. The water-oil emulsion slowly breaks down under higher downhole temperatures and water is released to the cement which hydrates normally.

Other advantages claimed for the cement include higher pump rates possible. Also storage of mixed cement is now possible for long periods of time.

## 22. New wire line cementing tool




A CEMENTING TOOL especially designed to aid in water shut-off problems has been designed by Welex, Inc.

This tool is made up of a cablehead, casing collar locator, firing unit, propellant chamber, pressure release, hydraulic anchor, packer, fill port, cement containers and cement retainer.

In operation the tool is assembled, filled and lowered into the well to the desired squeeze depth.

Hot gases generated by the burning propellant set the anchor and packer. Increased pressure ruptures the cement retainer disc and displaces the cement into the formation.

## 23. Additives improve cement properties

CMHEC ADDED TO CEMENT allows positive control of slurry thickening time even under high temperature and pressure. CMHEC, a cellouse derivative, has been tested in wells over 21,000 ft. deep and at temperatures in excess of 380 degrees, and has demonstrated excellent pumping characteristics.

In addition, initial and permanent set strength can be increased and strength retrogression due to extended exposure to high temperatures can be eliminated by the addition of finely ground silica to the cement slurry.

LATEX CEMENT has an overall success ratio of 75 percent in over a thousand cementing jobs including primary cementing, tail-ins, liner jobs, squeezes, plug-backs and as a lost circulation material.

Dowell Inc. has used a slurry containing a special latex material, a surface-active agent, and portland cement to acheive this unusually high success ratio.

TRACERS ADDED TO CEMENT can be used to locate 1) tops of cement, 2) zones taking cement, 3) cement channels, 4) depths, 5) location of gas sands, and 6) porosity, all in one trip.

New short half-life radio activated isotope tracers can be added to the cement. After cement is in place, one radio active log of the well will reveal the desired information.

Another type of tracer can be used in cement to determine the source of water entering into a well at any future date.

This method makes use of the fact that fluids passing over cement will erode away minute particles of material. These can be identified by microscopic analysis. Thus, by changing the tracer in each cementing job, area of water entry can be pin pointed.

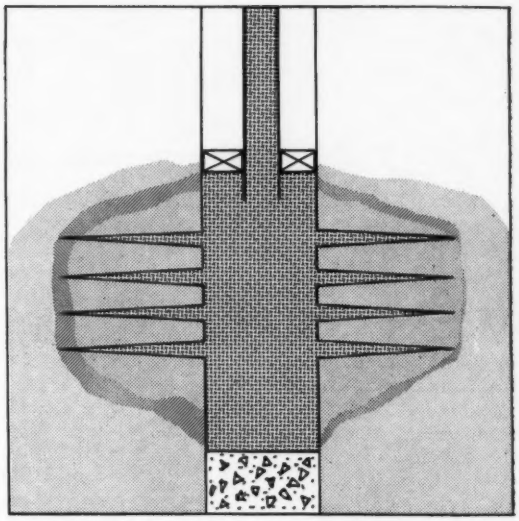
## 24. Inhibitor squeeze method pays off

OVER 150 TESTS in Texas, Louisiana and Arkansas have proved that the inhibitor squeeze method decreases the rate of corrosion in wells for periods as long as six months. Over half of these tests have been performed by Sunray-Mid-Continent Oil Company and Dowell Inc.

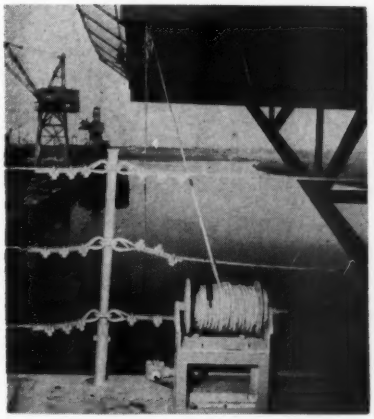
In treating, special inhibitor fluid is pumped into the formation, then overflushed with produced well fluid until the inhibitor is pushed far back into the formation. Well is then shut in for 24 hrs.

Actual treating time for a 10,000 ft. well with 5000 psi. is only two to four hours.

Over a period of several months produced well fluids pick up small amounts of inhibitor from the formation, thus continuously recoating the well bore and tubing and providing corrosion protection for these areas.



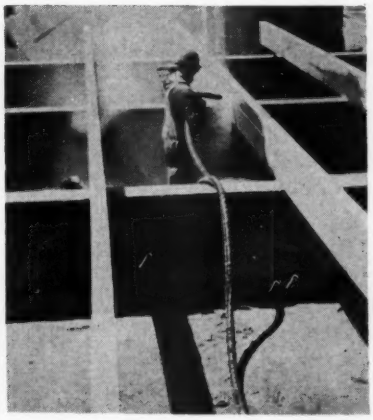
# New methods of preventing corrosion in the Gulf



## 25. Cathodic protection

NEWEST TECHNIQUE in cathodic protection for offshore installations is the suspension of duriron anodes on retractable lines in rectifier-duriron anode type corrosion prevention systems.

This suspension from a line attached to a reel allows the anodes to be retrieved during relocating or exceptionally rough seas. Method also allows easy inspection and replacement of anodes, and exact positioning of anodes regardless of water depth of platform.

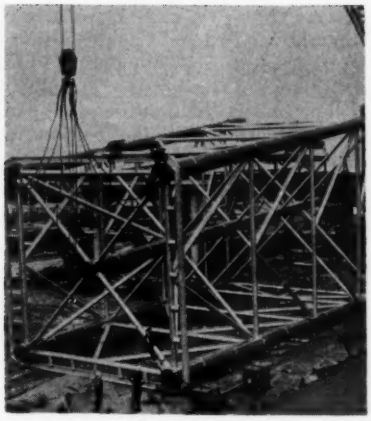


## 26. Coatings

SOME TYPE OF COATING is applied to the above water section of all offshore platforms. Among the newer coatings used are a zinc based material that forms a chemical bond with the coated metal, tough plastic coatings and coatings with resin, sulfanates, asphalt and rubber bases.

Formulas of the coatings can be varied for different types of protection.

Regardless of the type coating, proper surface preparation is of the utmost importance.



## 27. New alloys

ALUMINUM ALLOYS are among the most recent corrosion resistant metals to enter the offshore field. Thirty-four aluminum platforms similar to the one pictured above have been installed in the highly corrosive waters of Lake Maracaibo, Venezuela within the last six months. Aluminum crewboats and tugs have also been fabricated recently.

Other metal alloys widely used to effectively fight offshore corrosion include wrought iron, zinc, and monel.

**Drilling underway from . . .**

# $2.3 Million Fixed Platform— First In California Tidelands

**Well will test 5500-acre tract near Summerland that drew a bonus bid of $7.25 million in state's most recent sale**

WHEN a drilling crew spudded in a well on a 5500-acre tract in coastal waters near Summerland, California, recently, the event climaxed one of the most complex engineering feats ever attempted on the Pacific Coast.

The well is being drilled by Standard Oil Company of California, Western Operations, Inc., and Humble Oil & Refining Company, and marks the first use of a stationary offshore drilling platform in the California tidelands.

A mobile unit—**Pacific Driller No. 1**—has operated in California offshore waters, and drilling is underway from two man-made islands. But the Standard of California-Humble platform, built and erected in 100 feet of water at a cost of $2.3 million, marks the first use of a fixed drilling platform similar to those in service in Borneo, the Gulf of Paria and the Gulf of Mexico.

The operation entails other notable "firsts."

1) The specially-built Lee C. Moore derrick permits two wells to be drilled simultaneously from the platform—the first such rig to be placed in service in that area.

2) Submarine cables have been laid to the rig, about two miles off Summerland, to supply electricity for prime and auxiliary power. This use of conventional current is another West Coast innovation.

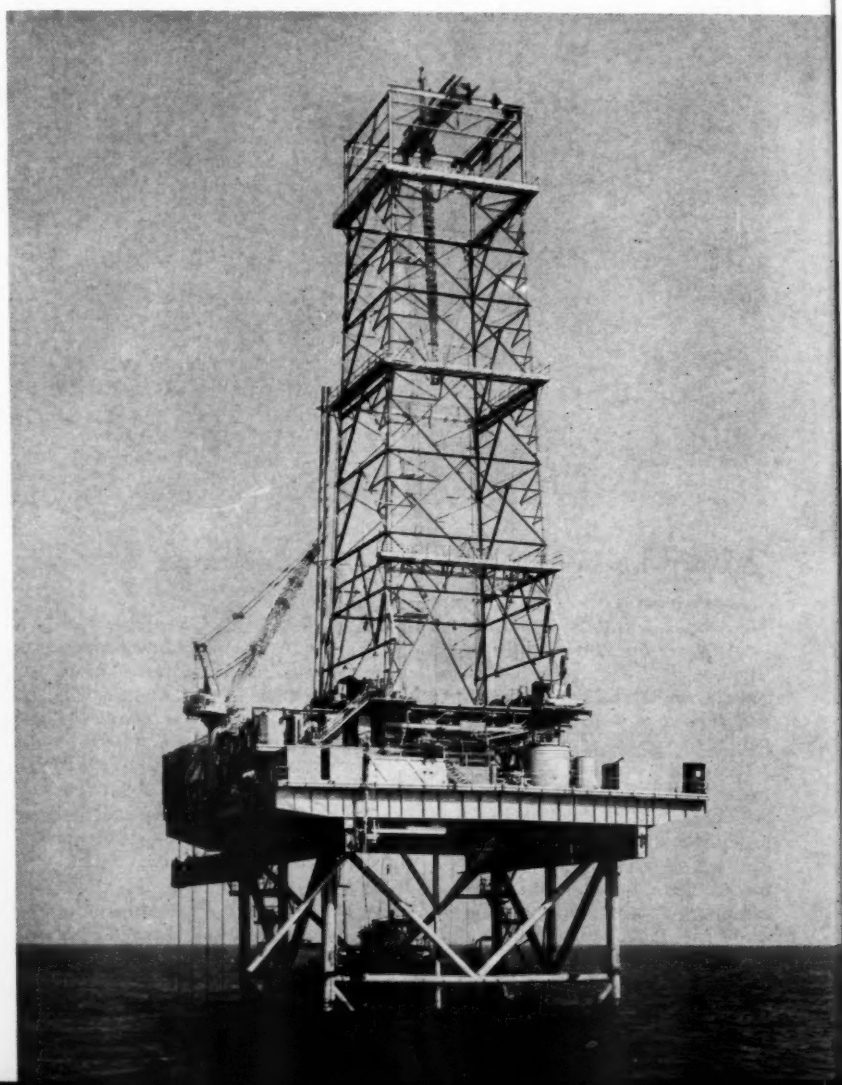
3) For the first time, a mammoth derrick barge similar to those in service in the Gulf of Mexico has been used to set a platform in California coastal waters.

4) The 5500-acre lease, for which Standard of California and Humble paid a bonus bid of $7.25 million in January of 1957, is the first such lease let by the State of California in recent years.

Many companies, supplying a diversity of services and equipment, contributed to the unusual marine project. The derrick barge—its 300-ft. by 90-ft. deck nearly equalling a football field in size—was built in New Orleans and towed around through the Panama Canal. The derrick and sub-structure, fabricated in Tulsa by Lee C. Moore Corporation, were carried on the derrick barge as deck cargo. The supporting tower and platform deck were fabricated in San Diego.

When the platform arrived on location, lowering and jetting-in operations lasted nearly a week. Anchoring the four massive caissons, which serve as a permanent foundation for the platform legs, took somewhat longer. The instal-

*(continued on page 40)*

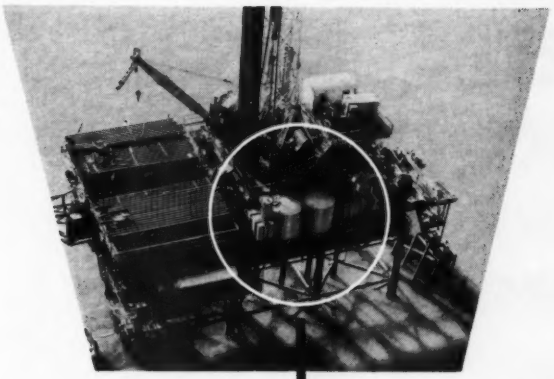


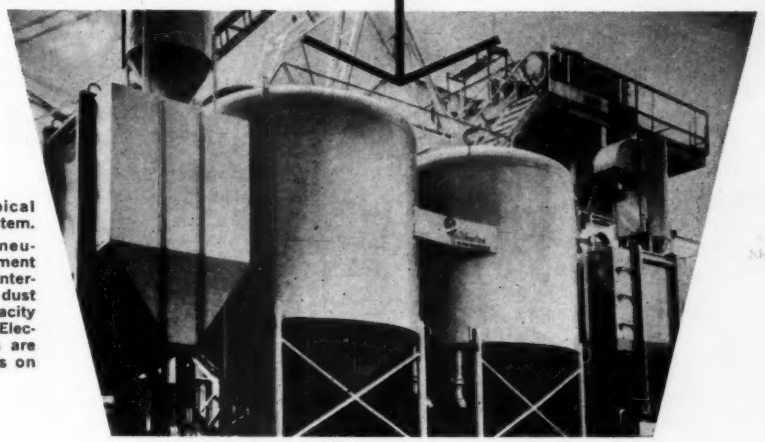
**CALIFORNIA'S FIRST fixed platform is double rigged to drill two wells simultaneously and up to a total of 25 wells.**

Pneumatic
Bulk

# material handling advantages!..

FROM **HALLIBURTON**





An Off-Shore Rig using a typical cement and mud handling system.

Equipment: 2—820 cu. ft. pneumatic storage tanks, one for cement and one for mud or can be interchanged; 2 surge bins with dust collectors, 1—30,000 lbs. capacity platform scale; 1—300 CFM Electric-Power Compressor. Tanks are filled from pressure vessels on work boat.

Halliburton Oil Well Cementing Company now offers engineering and installation of complete pneumatic plant storage and handling systems for mud, cement and other powdered or granular materials on a purchase or lease basis.

From manufacturing plant to truck . . . from surge bin to drill site. The pneumatic system is the most efficient and economical yet, for storage and delivery of finely divided dry materials.

Automatic uniformity of handling . . . saves time and labor . . . eliminates dust and waste . . . economical.

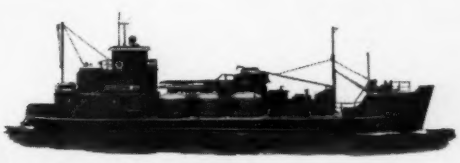
Pressure storage tanks can be used for any dry drilling material as the tanks are self-cleaning. There is no contamination. During deep drilling the mud storage tanks may be continuously pressurized.

Mud surge bins are supplied with an orifice proportioning valve to properly maintain drilling mud systems in balance. Electronic scales tell how much material was used in each tower.

This system eliminates roustabout labor requirements to cut sacks and eliminates dust. Automatic equipment requires but one man to operate.

Recently when a Gulf Coast off-shore rig began making hole, this typical combination pneumatic cement and mud handling system PROVED its worth. 1300 sacks of mud were moved into the system IN ONE HOUR.

Plant systems have been installed and are in operation at many locations on the Gulf Coast. For further information contact your nearest Halliburton Representative.

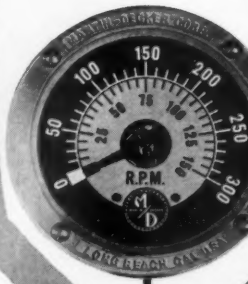


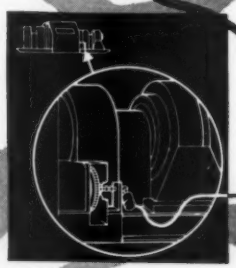
**HALLIBURTON**
**OIL WELL CEMENTING COMPANY**
DUNCAN, OKLAHOMA

PNEUMATIC BULK MATERIAL HANDLING EQUIPMENT

# MARTIN DECKER

## Rotary Tachometer



**Increase Penetration**

Drilling rate is a function of rotary speed. There is an optimum speed for each depth and formation. The driller must know rotary speed at all times so he can return to the optimum speed after each connection and make accurate reports.

**Save Equipment**

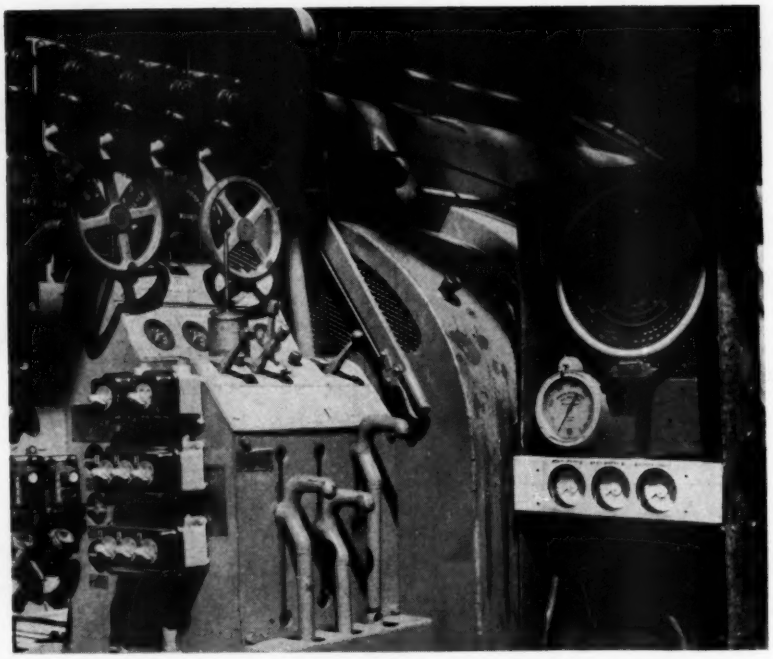
Tool joints and rotary equipment are powered by more horsepower each year. They are designed for rugged use, but an instrument is needed to protect this investment against abusive use.

**The New Electric Tachometer**

The new Martin-Decker Electric Tachometer is self energized. It is easily installed and calibrated to any rig. The new electric model has no mechanical tachometer cable which requires periodic replacement. The signal can be recorded on the new Martin-Decker electric recorders. This instrument is a rugged, dependable tool designed for years of active use.

WRITE FOR DESCRIPTIVE LITERATURE

MARTIN-DECKER CORP.
HOME OF THE WEIGHT INDICATOR
LONG BEACH, CALIFORNIA

DRILLERS CONTROLS for the all electric drilling rig are located in a compact area to the left of the drawworks, along with Martin-Decker weight indicator and tachometer.

## $2.3 Million Platform . . .

*(continued from page 38)*

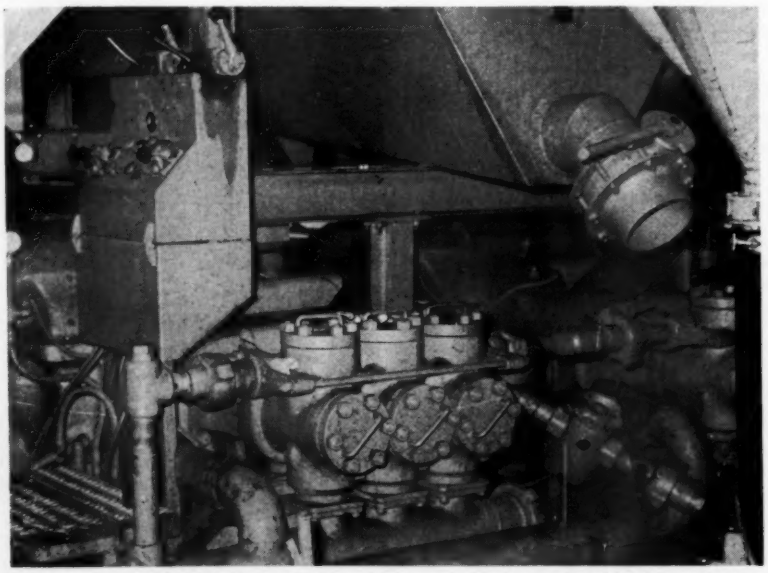
lation phase alone cost over $1 million.

**Towing operation . . .** The tow started in San Diego, where the $1 million platform was constructed by National Steel & Shipbuilding Corporation. The giant platform, consisting of a deck 110-ft. square mounted on a tower 75-ft. square and 150-ft. high, was not moved as an integral structure. The tower was towed—the deck section arrived separately.

The tower floated on four steel caissons, each 27-ft. in diameter by 40-ft. high, and rode 150 feet above the ocean waves. During the towing operation, the caissons were pressurized to 10 psi to prevent water leakage, and were ballasted with 90 tons of sand to improve stability. The tower floated upright and the caissons drew about 20 feet of water underway.

The tow, handled by two tugs

*(continued on page 42)*



CEMENTING FOR MULTI-WELL platform is handled by a Halliburton pneumatic bulk material handling system consisting of pressurized bins, automatic handling equipment and high pressure pump.

**NEW DELTIC POWERED** crewboat built for use in Lake Maracaibo streaks across the water at 35 knots.

**Vosper Ltd. completes . . .**

# Fast New Maracaibo Crewboat

**Shell's PL-4, powered by 2 Napier Deltic diesels carries 60 passengers at top speed of 35 knots**

A new crewboat will soon be sweeping across Lake Maracaibo for Compania Shell de Venezuela, carrying up to 60 passengers at a speed of 35 knots.

Builder of the 80-ft. **PL-4** was Vosper Limited of Portsmouth, England, but it is the two Napier Deltic 18 cylinder engines generating a total of 3240 bhp that enable the vessel to maneuver at such high speeds.

Since Venezuelan law requires companies to return personnel to shore after work hours, time is very much an essence. Distances up to 75 mi. from shore are common. Therefore, Cia Shell laid down unusually stringent requirements for the boat, which was ordered by Shell Tankers Limited and designed by Vosper Limited in close collaboration with representatives of the two Shell companies.

The keel was laid in August of 1957, and the **PL-4** was launched last January with sea trials following in June.

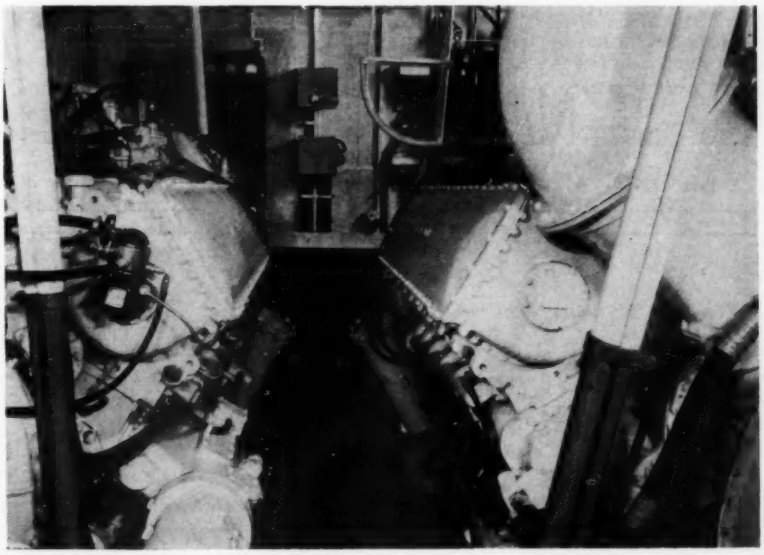
The **PL-4**, which can run continuously for eight hours at 35 knots, has an overall length of 80 ft., a moulded beam of 19 ft. 9 in., and a moulded depth of 9 ft. 2 in. Its outer construction features an all-welded steel hull and welded aluminium alloy superstructure.

**Main machinery** . . . Powering the **PL-4** are two Napier Deltic 18-25K commercial diesel engines developing 1620 shp at 1500 rpm with 1 to 1 ratio driving through Napier Vee drives. Motors are started by compressed air, and all machinery is remotely controlled from the wheelhouse.

The Napier Deltic diesel engines in the **PL-4** are a development of the motor torpedo boat engine, derated for commercial use, to increase the length of time between overhauls. As full power can be transmitted in either direction, both port and starboard engines are identical, thus reducing the spares holding at the operational base. The drive from the engine passes into an integral reversing gearbox and thence to a Napier Vee-drive. As there is no reduction gear, the final propeller speed is equal to that of the crankshaft—1500 rpm at full speed.

Engines incorporate a patent Napier device whereby astern can be selected from full speed ahead,

*(continued on next page)*



**TWO NAPIER DELTIC** 18-25K commercial diesel engines develop 1620 shp at 1500 rpm to drive the vessel at a top speed of more than 35 knots. Net dry weight of the engine complete with mounting feet and exhaust manifolds is 12,460 pounds, overall length is 127½ in., overall height is 90 in. and width is 75 in.

**GULFPORT BUILT . . .**

**Tug ZEUS, 103' x 25' x 13'— 1200 HP General Motors Diesel Gear Drive tug, built for Intracoastal Towing and Transportation Corp., Houston, Texas. Delivered August 13, 1957.**

•

Gulfport Shipbuilding Corporation builds many types of fine marine equipment for the oil industry . . . derrick barges, tugs, dredges, cargo barges, drilling platforms, seismic vessels, crew and cargo boats, and fast, rugged cruisers for the inshore oilfields . . . Whatever your problem, you are in capable hands at Gulfport.

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**Daly — Contracting de Venezuela**

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***Apardo 488, Maracaibo. Cable: DALYCON***

**PL-4's HULL is constructed of hard chine all-welded steel, specially designed to eliminate slamming in a seaway.**

## Shipyard . . .

*(continued from preceding page)*

enabling the launch to come to rest in approximately two boat lengths.

**Fuel capacity** . . . The vessel's fuel supply is carried in two 540-gal. main fuel tanks, plus a reserve tank of 140 gals., giving it a total fuel capacity of 1220 gals.

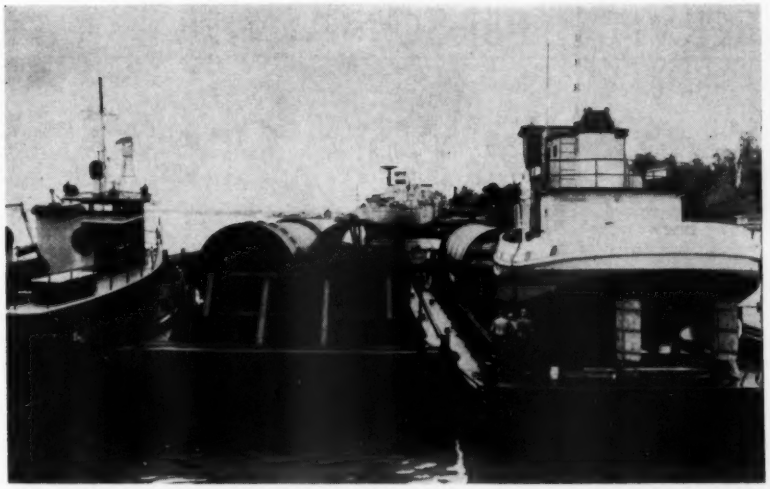
**Electrical system** . . . Electrical power is derived from a 1.5 KW 24 V.D.C. Lister generating set floating a 24V 130 ampere-hour battery by the D.P. Battery Company. Equipment includes searchlights and a Pye "Ranger" marine type ship-to-shore wireless set by Pye Telecommunications Limited.

**Steering gear** . . . Steering gear designed and manufactured by Mathway is electro-hydraulically power assisted for normal operation, but alternatively can be operated manually in the event of power failure. The combined throttle and reverse gear controls were supplied and fitted by Teleflex.

The steering is set well forward and high to provide the best possible vision—an essential in Lake Maracaibo due to floating logs and debris.

**Hull** . . . The hull is of the hard chine form of all-welded steel, but in view of the fact that conning and passenger positions are set well forward, Vosper Ltd. exerted a great deal of effort to avoid a characteristic of hard chine craft—slamming in a seaway.

**Superstructure** . . . The superstructure of the **PL-4** is all-welded light alloy and the passenger accommodation is lined with light green Lionide. Ventilation trunking with directional punkah louvres is fitted throughout the space.



**BARGES BUILT specially for use in Lake Maracaibo begin the tow to Venezuela where they will be used by C. A. Venezolano de Cementos. Equitable Equipment Company was the builder.**

# Equitable Delivers Vessels For Use in Lake Maracaibo

Two barges specially designed for shallow-draft stability on Lake Maracaibo were completed recently by Equitable Equipment Company of New Orleans.

Equitable also delivered a 65-ft. tug to the owners, C. A. Venezolana de Cementos. The tug was loaded aboard one of the barges and the two barges were towed to Venezuela.

The barges, which were built to American Bureau of Shipping specifications, were 140 ft. long by 33 ft. wide by 6½-ft. deep. The tug, a twin screw design, was 65 ft. long with a 21-ft., 7-in. beam and a 5-ft., 11-in. draft.

## Leeville Shipyard Installs New Ship Repair Facilities

A new marine elevator lift and dry dock facilities have been put into operation by Leeville Shipyard Corporation on Bayou Lafourche below Golden Meadow, Louisiana.

Ashton P. Collin, president, announced that facilities were available for servicing all types of tugs, boats and watercraft up to several hundred tons gross weight.

## Gibbs Corporation Moves To Larger New York Office

New York offices of Gibbs Corporation have been transferred to larger quarters at 215 East Forty-Ninth Street. Gibbs carries on marine repair, conversions and new construction at its shipyard located at Jacksonville, Florida.

## California Shipbuilders Ready For Offshore Building Surge

With the upswing in offshore drilling off California, West Coast shipyards are getting set to build offshore platforms after several years of preparation.

The only shipbuilding firm on the West Coast which has completed a permanent platform is National Steel and Shipbuilding Corporation of San Diego. It built the tower for the steel platform which is being used to explore a Standard-Humble lease off Summerland, California.

However, a mobile unit of the DeLong design—300 ft. by 120 ft., weighing 700 tons—was recently completed by Pacific Coast Engineering Company of Alameda. Expected to be used for offshore drilling operations eventually, it is presently preparing to lay a sewage line at sea.

Some of the other shipyards expected to come in for their share of construction are Todd Shipyards Corporation, Los Angeles harbor; Moore Dry Dock Company, Oakland; and Bethlehem Pacific Coast Steel Corporation, San Francisco.


*whether you're* **Mr. BIG**

*or*

**Mr. Little...**

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. . . measures 37'6" x 12'4". She is powered by two 6071A GM engines; 1.5:1 reduction gear. She attains speeds of 34.2 miles per hour at 2250 RPM and 29.0 miles per hour at 2000 RPM.

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# SERVICE PERSONALITIES . . . .

## Kane Boiler Works Opens Sales Office in Houston

Kane Boiler Works, Inc., Galveston, Texas, has opened a new sales office in the Bank of the Southwest Building, Houston, according to Joseph J. Kane, president.

Frazee

L. D. (Len) Frazee, who was recently named vice president will share responsibility of the new office with G. W. (Jerry) Campbell, sales manager.

Kane Boiler Works, which came into being in 1892, recently completed a large expansion program that includes a new mill designed by Joseph Kane for the manufacture of high-test KANEWELD (5LX) line pipe.

### Tarwater Chosen President Of New CP-Harrisburg, Inc.

T. P. Tarwater has been named president of CP-Harrisburg, Inc., Fort Worth. Former President Ken W. Davis is now chairman of the board.

Tarwater

The company was organized recently as a distributor of the oil field equipment manufactured by Chicago Pneumatic Tool Company at Fort Worth.

Tarwater was formerly general manager of sales of Mid-Continent Supply Company. He had been with Mid-Continent since 1936.

### New Drilling Mud Facility Established on Gulf Coast

Oil-Bar, Inc., processor of drilling mud, has set up a new plant in Morgan City, Louisiana, where it will grind and sack baryte for the Gulf Coast market.

Initial capacity of 5000 tons per month is expected for the Morgan City facility. The firm also has plants in Houston and in Kentucky.

### C. J. Zabcik Named Engineer With Baash-Ross at Houston

C. J. Zabcik has been named research and development engineer for Baash-Ross Division of Joy Manufacturing Company, it has been announced by B. J. Terrell, chief engineer.

Zabcik

Zabcik, a native of Rogers, Texas, holds a Bachelor of Science degree in mechanical engineering and is a registered Texas professional engineer.

Before joining Baash-Ross at its Houston plant, he worked two years for Westinghouse Electric Corporation. Prior to that he had worked for the Western Company in Midland and the Shamrock Oil and Gas Corporation in Amarillo, Texas.

### Bowen ITCO, Inc. Takes Over Operations of S. R. Bowen Firm

Bowen ITCO, Inc., Houston, has taken over operations of the S. R. Bowen Company and will provide uninterrupted service to customers and agents of both companies, announced Fred N. Osmun, president.

Bowen ITCO manufactures oil field specialty tools—overshots, jars, spears and a complete line of wire line equipment.

### Schlumberger, Century Offer Seismic Reference Service

Century Geophysical Corporation, Tulsa, Oklahoma, has joined with Schlumberger Well Surveying Corporation to provide the oil industry with a geophysical velocity logging service to be known as the Seismic Reference Service.

The service is now operational in

the Permian Basin area and plans include expanding it to cover all domestic oil exploration areas in the United States.

Century is acting as a sub-contractor to Schlumberger in offering the service and performs seismic tie-in operations in connection with the Schlumberger sonic log to produce velocity calculations necessary for accurate geophysical mapping. Century has established a data center in its Tulsa office in order to process and evaluate results obtained.

### Flori Chief Elected to Board Of Young President's Group

Robert D. Flori, president of The Flori Pipe Company and Houston Pipe & Steel, Inc., has been elected to the national board of directors of the Young Presidents' Organization, Inc. for a two year term. Elections were held at the organization's recent annual meeting in Honolulu, T. H.

Flori

The Young Presidents' Organization is an international group with 1500 members in the United States, Canada and other countries. It is composed of men who before the age of 40 were presidents of industrial firms with more than $1,000,000 annual sales and more than 50 employees, or of consumer product firms with $2,000,000 or more annual sales and 25 or more employees.

### Pierce Appointed Manager For Pennsalt Department

Robert L. Pierce has been named manager of the Corrosion Engineering Products Department of Pennsalt Chemicals Corporation, Philadelphia.

James H. Cogshall has been appointed sales manager and Robert S. Mercer, manager of development of the same department.

Pierce will be headquartered in Natrona, Pa., where all activities for his department will be centered starting in September. Formerly in charge of sales for Pennsalt's corro-

*(continued on next page)*


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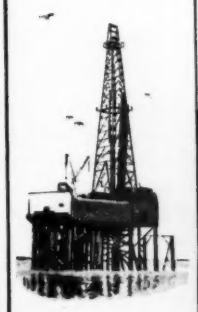

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## Service Personalities . . .

*(continued from preceding page)*

sion engineering products, he is a veteran of 17 year's experience.

Cogshall, who joined the company as a staff coatings engineer in 1950, has served as sales engineer on the staff of the Corrosion Engineering Department since 1953.

## Continental-Emsco Appoints Industrial Sales Branch Chief

R. E. "Dick" Scheibel has been named manager of Continental-Emsco Company's newly established industrial sales department.

Scheibel

A former division merchandise manager for the oil field manufacturing and supply company, he will headquarter in Dallas.

The new department will be a part of the Machinery and Miscellaneous Sales Division and will be under the supervision of W. C. Kinder, vice president. It will be responsible for sales of swivel joints and other industrial products.

## Potts Named Superintendent Of Brown Oil Tools Division

Brown Oil Tools, Inc. has set up a new field pipe testing division at its Houston headquarters with E. L. Potts as superintendent. All testing equipment has been transferred to the division.

Potts

The new division superintendent came to Brown in 1949 from Halliburton Oilwell Cementing Company.

Woodrow Heard, who joined the firm in January of this year, has been appointed works manager.

Another new appointment is that of Furniss M. Prell to salesman for metropolitan Houston.

## Continental-Emsco Appoints In New York and Venezuela

Continental-Emsco Company announced the appointment of William Storms as merchandise manager in Caracas, Venezuela, and Werner R. Rieter as export sales engineer in New York.

Storms, as merchandise manager for Continental-Emsco Company C. A., will have direct supervision of inventory and merchandise stocking for the three Continental-Emsco stores located in Venezuela. Rieter will headquarter in the home offices of Continental-Emsco's export division. The oil field supply and manufacturing company's export division is managed by H. E. Lowrey.

## Security Engineering Names Griffin to Sales Manager

Claude L. Griffin has been appointed sales manager in the United States and Canada for Security Engineering, rock bit manufacturer.

Griffin

Griffin has been active in the oil industry since 1933. Most recently he was vice president of American Iron and Machine Works Company, in charge of international sales. Previous experience included design and marketing of various items of oilfield equipment.

He is active in the NOMADS, AAODC, Shrine and Jesters.

## J. & L. Named Distributor For Continental Tank Co.

Jones & Laughlin Supply Division of Tulsa and Continental Tank Company of Oklahoma City have negotiated an agreement for exclusive supply company distribution of Continental tanks throughout the oil fields of the United States, Canada and overseas.

The annoucement was made jointly by Rainey Elliott, president of Jones & Laughlin Supply, and Guy O. Marchant, president of Continental Tank Company.

Past practice has generally been for manufacturers of tanks to sell direct to the oil producer.

## Guy Rejoins General Gas Firm As Executive Vice President

Charles W. Guy recently rejoined General Gas Corporation as executive vice president and a member of the Board of Directors.

Guy

Guy also was named executive vice president and a director of Delta Tank Manufacturing Company, Inc., a wholly-owned subsidiary of the Baton Rouge, Louisiana, LP-gas firm.

Guy held the position of executive vice president and director of General Gas prior to his resignation in 1954. Since that time, he has served as vice president and treasurer of Texas Natural Gasoline Corporation in Tulsa, Oklahoma.

## Bill Vark Named District Manager for Bethlehem

Bethlehem Supply Company has announced the appointment of W. J. (Bill) Vark as District Manager of the Louisiana Gulf District, with headquarters at New Orleans, Louisiana.

**STATEMENT REQUIRED BY THE ACT OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946 (Title 39, United States Code, Section 233) SHOWING THE OWNERSHIP, MANAGEMENT, AND CIRCULATION OF**

OFFSHORE, published monthly at Conroe, Texas for November 1958

1. The names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, John H. Latham, Highway 75 N., Conroe, Texas; Editor, Tom V. Sneed, Highway 75 N., Conroe, Texas; Managing editor, none; Business manager, Jean Latham, Highway 75 N., Conroe, Texas.

2. The owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual member, must be given.)

Industrial Trade Publications, Highway 75 N., Conroe, Texas; Owners: John H. Latham, Highway 75 N., Conroe, Texas; Jean Latham, Highway 75 N., Conroe, Texas.

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5. The average number of copies of each issue of this publication sold or distributed, through the mail or otherwise, to paid subscribers during the 12 months preceding the date shown above was: (This information is required from daily, weekly, semiweekly, and triweekly newspapers only.)

JOHN H. LATHAM
(Signature of editor, publisher, business manager, or owner)

Sworn to and subscribed before me this 11th day of October, 1958.

(My commission expires June 1, 1959)
Mamie Wiseman
(SEAL)

# Wellhead Developed for Underwater Completions

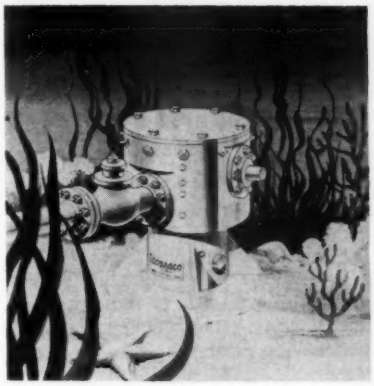
A one-piece unitized wellhead for underwater completions has been developed by Cosasco Division of Perfect Circle Corporation. Designed for installation on the ocean floor, the new wellhead is made entirely of corrosion-resistant stainless steel.

Formerly, it was necessary to install wellhead and Christmas tree equipment on elevated platforms to protect them from the corrosive effects of salt water; however, the Cosasco wellhead can be set directly on the floor of the ocean.

Another advantage is that the undersea oil field is completely out of sight, once the drilling barges have been removed and the wells are producing.

Use of low-carbon nickel stainless steel throughout makes it impervious to corrosion, oxidation, hydrogen blistering or stress cracking. Developed by Leland Auer, Cosasco chief engineer, it weighs approximately the same as a standard Cosasco wellhead of alloy steel construction.

**For further information, write Cosasco Division of Perfect Circle Corporation, 11655 McBean Drive, El Monte, California.**



## New Turbo-Supercharged Engine Has 50% Higher HP

A turbo-supercharged opposed-piston diesel engine, smallest and lightest commercial diesel in its horsepower range, has been announced by Fairbanks, Morse & Company. Supercharging has added 50 percent to the capacity of this 2-cycle diesel, making it available in ratings up to 3600 horsepower.

An added dividend of the turbocharging is a 5 to 10 percent saving in fuel consumption, according to the manufacturer.

Turbocharging is available in the 6-cylinder and 12-cylinder configurations of the 8⅛ by 10-inch opposed-piston engine.

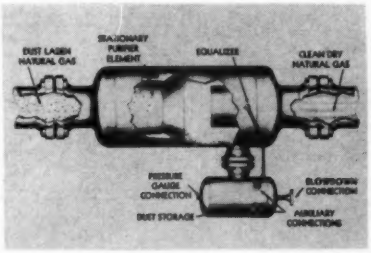
**For further information write Fairbanks, Morse & Company, 600 South Michigan Avenue, Chicago 5, Illinois.**

## New Scrubber Gets Dust As Small as 10 Microns

A new type LD Hi-eF scrubber has been developed which can remove dust particles down to 10 microns in size.

The unit eliminates the use of filters or screens in dust scrubbing natural gas in transmission and distribution pipelines.

Dust elimination is acheived by carefully controlling the flow of natural gas against an impingement baffle and through a purifier element that imparts to the stream an extremely rapid, centrifugal movement.




This force draws dirt and other entrainment to the walls of the chamber where it is directed into a storage reservoir to be blown down periodically to atmosphere.

**For further information write The V. D. Anderson Company, Division of International Basic Economy Corporation, 1935 West 96th Street, Cleveland 2, Ohio.**

## New Packer Retriever Described in Bulletin

A four-page folder describing a Packer Retriever, a new tool which offers a safe measure for retrieving drillable production packers, is now available from the manufacturer.

The folder covers the tool's use and advantages, with illustrations of the tool in operation, sectional drawings, and complete instructions for release and resetting procedure.

**For further information, write Bowen ITCO, Inc., P.O. Box 4597, Houston 13, Texas.**

## Flowmeter Gives Direct Total Mass Flow Reading

Hastings-Raydist, Inc., of Hampton, Virginia, has come out with a new type flowmeter which provides direct reading of total mass flow, independent of temperature and pressure variations.

Designed to measure mass flow of air or other gases and known as the Hastings Mass Flowmeter, the instrument is calibrated directly in milligrams of air per minute and is said by the manufacturer to be especially well suited for measuring low rates of flow such as in gas chromotography.

Measurement of mass flow is accomplished by incorporating a heated thermopile element in a flow tube. The thermopile circuit is self-compensating for both ambient temperature and rate of change of temperature.

**For further information, write Hastings-Raydist, Inc., Hampton, Virginia.**

## Adjustable-Speed Drives Have Precision Accuracy

Industrial adjustable-speed drives with accuracies that previously have been associated only with laboratory

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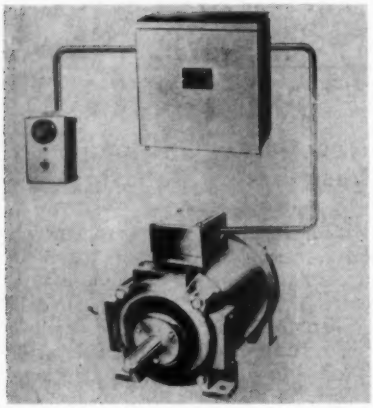

## New Products . . .

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instruments have been developed by Servo-Tek.

The new line is known as the PRECISION Series. These adjustable-speed drives incorporate totally enclosed fan-cooled motors for better protection from environmental conditions.

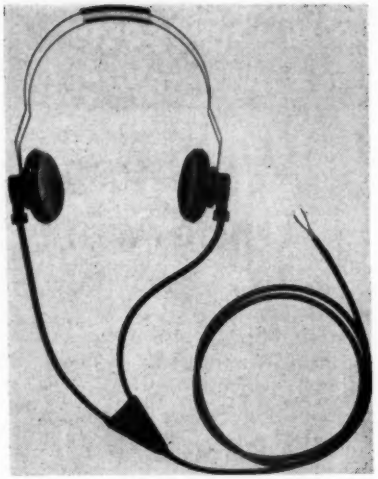
The new line is available in various horsepowers, up to and including ¾ hp., and features regulation in the order of ½ of 1% throughout a speed range as high as 100:1. All models can be continuously operated at full torque even at the lowest speeds.

**For further information write, Servo-Tek Products Co., 1086 Goffle Road, Hawthorne, New Jersey.**

### Navy's Undersea Headset Ready for Offshore Use

An underwater headset, originally built to U. S. Navy specifications, has just been declassified and is now being made available for offshore exploration and drilling operations.

The unit is entirely non-corrosive and is completely sealed for underwater operation in salt or fresh water to depths of 100 ft. It withstands wide temperature ranges and is highly shock resistant.



**For further information, write Telex, Inc., 1633 Eustis St., St. Paul 1, Minnesota.**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**Wildcat fails but . . .**

# Lake Erie Has Record Year

**Trenton test finds no pay, but largest operator on Canadian side adds no less than 14 new wells**

Consolidated West Petroleum Limited, Lake Erie's leading operator, has plugged a wildcat after drilling to the Trenton limestone 1649 ft. below the top of the Guelph formation, chief producing zone in the lake's gas fields.

However, thirteen development wells were all producers, and another is being drilled. After enjoying what it considers one of its best seasons, Consolidated West must now leave the lake with about 20 other operators due to the coming of winter ice floes which make operations highly dangerous.

Consolidated West encountered wells with larger open flows and higher rock pressures farther offshore the past season. It completed eight wells on its new lease area with a combined daily open flow of 5,575,000 cubic ft., or an average per well of 696,875 cubic ft.

Five wells completed on the old lease area yielded a combined daily open flow of 2,030,000 cubic ft. of gas, or a per well average of 406,000 cubic ft.

Underwater Gas Developers Limited, the subsidiary which conducts all Consolidated West drilling operations, completed ten contract wells for outside companies and had six more wells drilling at last report.

## Sun Group Hits Twice More; One is 9000-Bbl. Dual Oiler

Another dual oilwell, producing a total of 9385 bbls. of oil per day, has been completed in Lake Maracaibo's prolific Block No. 1 by the Venezuelan Sun Oil Company group.

On ¾-in. choke, SVS No. 16 tested 3265 bbls. of 35.2-degree gravity oil and 5180 bbls. of 35.7-degree gravity oil from the Eocene sands.

Another well, SVS No. 15, flowed 940 bbls. per day of 35.4-degree gravity oil on a ½-in. choke, with perforations between 8447 ft. and 8594 ft.

The Sun Group, rounded out by Venezuelan Atlantic Refining Company and Texaco Seaboard, Inc. group, now has 14 good producers on the concession which it obtained from the Venezuelan government early in 1957.

## Paria Operations Spuds No. 3 After Second Wildcat Fails

The second wildcat drilled in the Gulf of Paria by Paria Operations, Inc. has failed to find commerical oil, and the operator has moved on to a third test. Posa 103-A-1 was drilled to 11,500 ft. and abandoned.

At the site of the discovery well, a concrete platform capable of drilling up to 25 deviated wells from the one site will spud in soon.

## Long Drilling Drouth Broken On Lower Texas Gulf Coast

Mayfair Minerals has announced plans to drill a wildcat to 9500 ft. off Nueces County in the Gulf of Mexico.

The test—first to be staked on the lower Texas Gulf coast in quite some time—is 2½ mi. northwest of the nearest offshore production. The location is 16 mi. southeast of Corpus Christi.

## ODECO's El Dorado to Drill Fifth Gulf of Campeche Test

After failing to come up with oil in its first four drilling attempts in the Gulf of Campeche off Mexico, Ocean Drilling and Exploration Company plans to try again.

Using its new mobile unit, the **El Dorado,** ODECO has drilled four holes in 30 to 50 ft. waters without any difficulty. Depth of the wells was about 6500 ft.

ODECO is participating in the venture through Pauley Pan American Petroleum Company, which holds an exploration and development permit from the Mexican oil agency Petroleos Mexicanos.

**A NEW MOBILE UNIT drills ahead on the confirmation well in the Persian Gulf field discovered late last year at Manifa by Arabian American Oil Company. The rig, MOBILE PLATFORM NO. 1, was built by R. G. LeTourneau, Inc., Longview, Texas, and outfitted at Ras Tanura terminal for drilling in conjunction with the barge QUEEN MARY, shown anchored alongside. The Manifa field was opened in the Yamama formation, a new zone producing 26-degree gravity sour crude.**

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# Dresser Has Decline in Sales But Net Earnings Increase

Dresser Industries, Inc., Dallas, Texas, has announced net earnings after taxes for the third quarter of the fiscal year of $2,447,000 on sales of $55,479,000.

This compares with earnings of $5,217,000 on sales of $71,211,000 for the same period a year ago.

Sales during the third quarter declined slightly from the second quarter, but net earnings increased about thirteen percent, due primarily to a concerted program of cost reduction.

Feeling that the petroleum industry has successfully overcome the problems leading to the decline in operations, the Board of Directors voted to maintain the quarterly dividend of $0.50 payable September 15 to shareholders of record as of the close of business September 2.

## Murphy Pays $1.17 Dividend For Second Straight Year

Gross revenues of Murphy Corporation and consolidated subsidiaries for the 1958 fiscal year amounted to $28,585,000 compared with $20,389,000 for the previous fiscal year, the annual report revealed.

Consolidated net income was $2,758,576, equivalent to $1.17 per share for common stock, just equal to common stock premiums for the 1957 fiscal year.

Ocean Drilling & Exploration Company, Murphy's 52 percent owned offshore drilling subsidiary, has reserves of 41,801,000,000 cubic ft. of natural gas and 824,000 bbls. of natural gas liquids.

Consolidated capital expenditures were $17,100,000, down slightly from fiscal 1957. Included were $11,200,000 for exploration and development, $785,000 for purchase of new timberlands and $4,600,000 for offshore equipment.

Total completions for the year were down to 66 net wells from 93 in the previous year. Of these, 46 were producers and 20 were dry holes. Charles H. Murphy, Jr., president, pointed out that fewer wells are reflected in the shift to offshore and foreign areas where wells are deeper and more expensive.

## Second Quarter Profit Rise Nets Byers Co. $280,050

A net profit of $280,050, after taxes on sales of $6,887,187 for the second quarter of 1958, was reported by A. M. Byers Company.

Last year during the same quarter, the net profit was only $39,950 on sales of $6,870,629.

In announcing the quarterly earnings, B. M. Byers, president, stated, "Despite the general economic recession, we have been able to keep our sales and profits at healthy levels.

"Last fall, we broadened our line of Amballoy specialty steels and PVC products. In February, we introduced improved 4-D Wrought Iron, and have vigorously sought out new markets for all three product lines.

"Our policy of stepped-up marketing in a slowed-down economy has proved very successful and we intend to aggressively continue this program."

## U. S. Steel Stock Pays $1.75 Per Share in Second Quarter

Board of Directors of United States Steel Corporation declared a second quarter dividend of $1.75 per share on preferred stock and 75 cents per share on common stock.

Income for the second quarter of 1958 was reported as $73.2 million, or a return of 8.5 percent on sales of $863.1 million. During the first six months of 1958, income was reported as $135.6 million, which compares with income of $231.4 million for the first six months of 1957.

In the expenditure column for the second quarter, replacements of facilities totaled $122 million, while

at mid-year authorized projects to be completed required a further expenditure of $770 million.

A new issue of $300 million in United States Steel Corporation four percent sinking fund debentures due in 1983 was offered to the public last July. The debentures are not refundable prior to 1963 at a lower interest cost to the corporation.

### Sun's Consolidated Net Drops To $11,559,585 in First Half

Consolidated net income of Sun Oil Company and subsidiaries for the first half of 1958 totaled $11,559,585, Joseph N. Pew, Jr., chairman of the board, announced.

This figure compares with a consolidated net income of $25,187,436 for the corresponding period of 1957.

First half net earnings resulted from a gross income of $334,671,000 —16.5 percent under the $400,921,000 of gross income for the first six months of 1957.

### Net Earnings of Creole Show $60 Million First Half Drop

Creole Petroleum Corporation reported estimated net earnings for the first six months of 1958 of $160,913,000 or $2.07 per share.

These earnings compare with $221,648,000, or $2.86 per share for the first six months of 1957.

The company's production of crude oil plus purchased royalty oil for the first six months of 1958 averaged 1,032,072 barrels per day, down 17.0 percent from the daily average of 1,243,252 barrels for the corresponding period of 1957.

The combined crude runs of Creole's refineries at Amuay and Caripito averaged 303,895 barrels per day for the first half of 1958, or 7.7 percent below the daily average for the first six months of 1957.

The company's capital and exploration expenditures amounted to $82,000,000 during the first six months of 1958, a decrease of 29 percent from the $115,000,000 during the first half of 1957.

### Gardner-Denver's Sales Drop $7.5 Million for First Half

Net sales of Gardner-Denver Company for the first six months of 1958 were $27,826,519, G. V. Leece, president, reported.

It marked a decrease of $7,460,876, or 21 percent, from the record volume for the first half of 1957.


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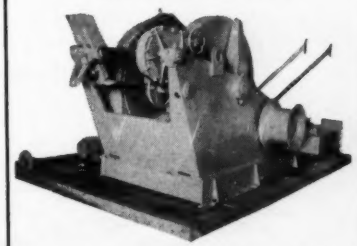

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**Boa-tel'** (bo-tel')—A catering service that furnishes food, tableware, kitchen utensils and linens—plus the personnel to prepare and serve meals and to do housekeeping—for the oil industry both at offshore and onshore locations.

**Boa-tel' steward** — An experienced chef who plans and prepares as many meals per day as are required for any size crew for any length of time.

**Boa-tel' con-trol'** — The system of controlled costs that makes Boatel Service tops in quality, yet competitive in price.

**Boa-tel-ier'**—One who provides Boatel Service. (Only General Marine Corp.)

**Boa-tel' men** — Cooks, dishwashers, waiters, bedroom stewards, butchers, warehousemen, truck drivers, anyone having any part in providing Boatel Service.

**Boa-tel' sup-ply' base** —A modern warehouse—just built at the new Plaquemines Parish, La., headquarters of General Marine Corp.—with a meat cutting room approved by the Department of Health and a 20-below-zero freezer where meat and food products are received and inspected. Supplies are distributed to the field in Boatel refrigerated trucks.

**GENERAL MARINE CORP.**

*The same outfit that delivers top-quality Deck & Engine Service for drilling tenders*

*Now located on* **Belle Chasse Highway**
**Belle Chasse (Plaquemines Parish), La.**

*Mailing address:* **P.O. Box 262, Harvey, La.**

*Telephone* **FOrest 6-1585**


# The Slush Pit . . .

Did you hear about the West Texan who'd been unlucky all his life. But things changed—when they dug his grave they struck oil.

---

"Where did you get that black eye?"
"From a cough."
"A shiner from a cough?"
"Yeah, I coughed in a clothes closet."

---

Sitting around the cracker barrel in the general store these two North Arkansas hillbillies were philosophizing about the Bibles stories.

"That Solomon," Zeck drawled, "must have been a go-getter. With all them wives and concubines he had, beats me how he was able to keep them in vittles."

"That don't bother me none," Zeb replied. "I don't keer how he fed 'em, but . . . I'd give a purty to know what he et hisself."

---

One lady of the street to another lady of the street: "Loan me five bucks till I get off my feet."

---

"Your husband looks like a brilliant man. I suppose he knows everything."

"Don't be silly. He doesn't suspect a thing."

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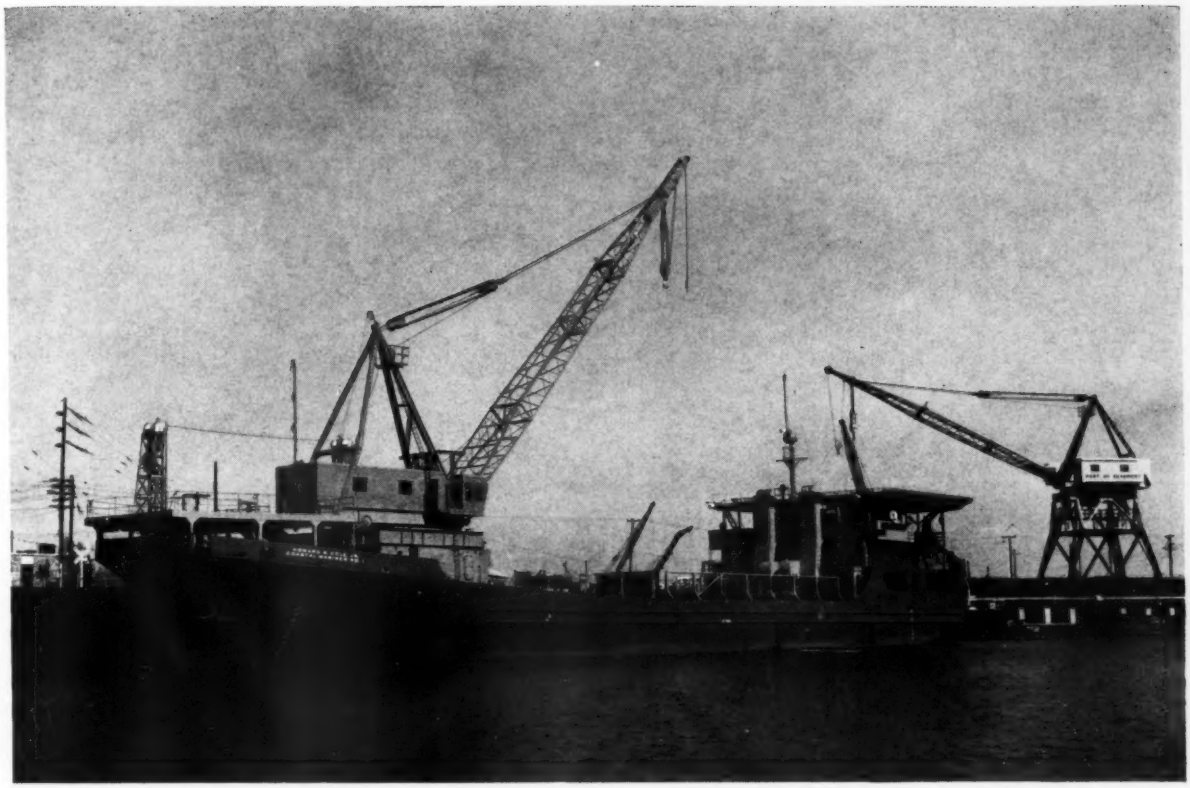
*"Woman aboard? Oh, no sir! Just me and this little ol' figurehead."*



# Clyde Whirley Equipped Drilling Tender Docks Alongside Port of Beaumont Clyde Whirley

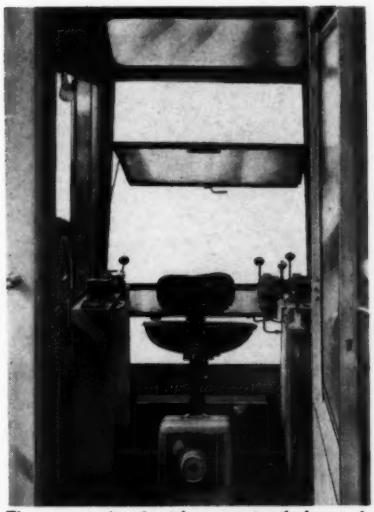
Shown above is the Clyde Whirley equipped Howard S. Cole, Jr., a new type of offshore drilling tender built for Coastal Marine Drilling and Construction Corporation of Houston by New York Shipbuilding Corporation, Camden, N. J. It is designed to move without the aid of tugboats even in rough weather and has the mobility and seaworthiness of a conventional ship.

## CLYDE WHIRLEYS FOR FLEXIBILITY AND DEPENDABILITY!

This deck mounted Clyde Whirley with its 110 ft. boom and a 20 ft. jib, is rated at 60 tons at a 60 ft. radius, ample capacity to handle heavy drilling equipment. With the Clyde, the Howard S. Cole, Jr. can rig-up or dismantle the platform's equipment. No derrick barge is required. The Clyde Whirley also equips the tender for construction and salvage work.

Clyde Whirleys have the engineered features that only sixty years of specialized experience can build into a crane. Whether the installation be on deck or dock or construction site . . . a self-propelled or stationary mounted unit, Clyde Whirleys, engineered to exactly fit your requirements, offer flexibility and dependability that make them the standard of comparison!

Write our specialized engineering department concerning your requirements. There is no obligation.



The operator's cab with conveniently located, easily actuated control levers is positioned forward for good work vision and makes the operation of a Clyde Whirley as nearly fatigue-free and as safe as possible!

CLYDE RIC REPUBLIC INDUSTRIAL CORPORATION

**CLYDE IRON WORKS, Inc.**

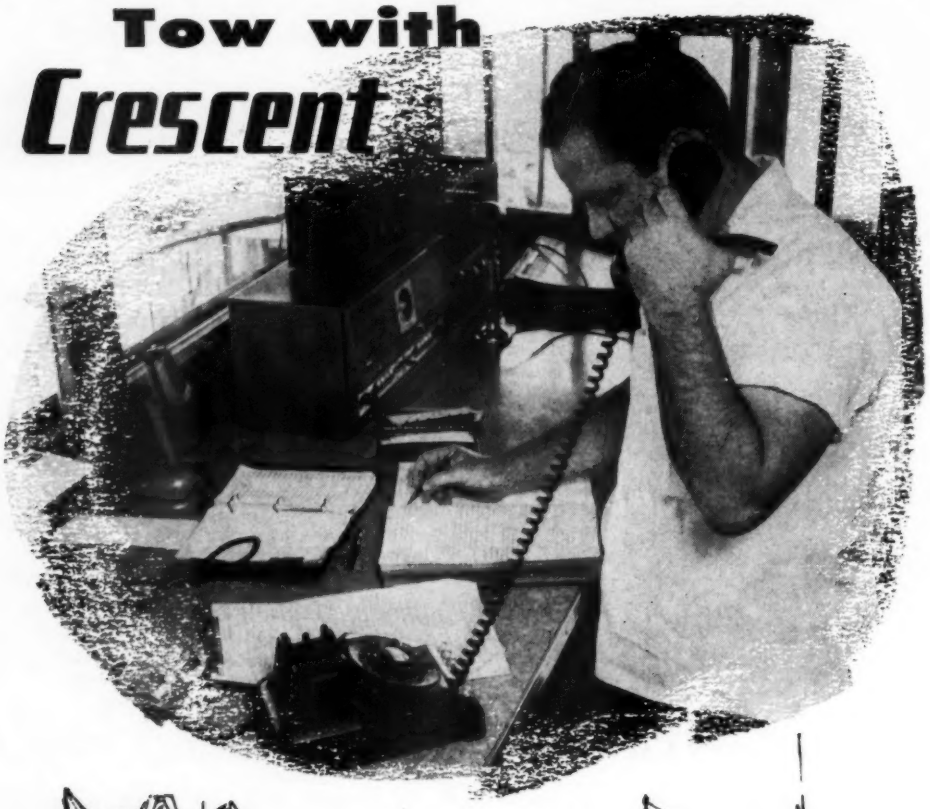
Established 1899

DULUTH 1, MINNESOTA

HOISTS : DERRICKS : WHIRLEYS : BUILDERS TOWERS
UNLOADERS : CAR PULLERS : ROLLERS

***The services of our Marine Engineering Department are at your disposal***

# Stand by with speed . . .
## Tow with *Crescent*



At your beck and call—fast, powerful tugs, expert crews—the famous Crescent Fleet, as near to you as your telephone. And the service is special.

**CT&S** **Crescent Towing & Salvage Co., Inc.**

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